ENGINEERING NEWS-RECORD

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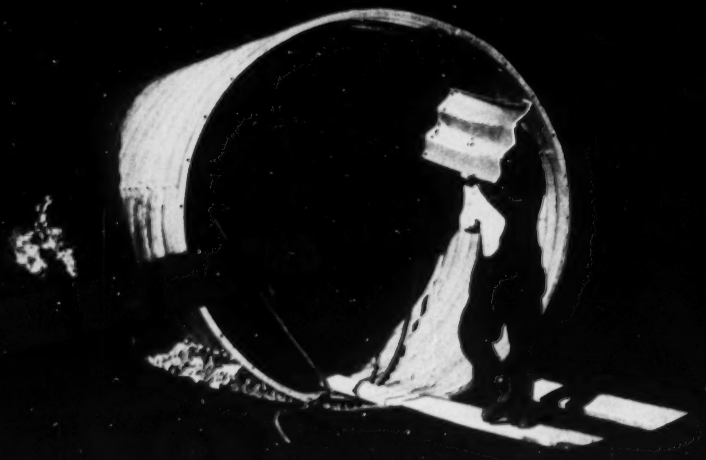

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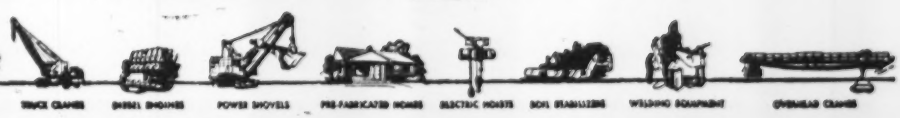

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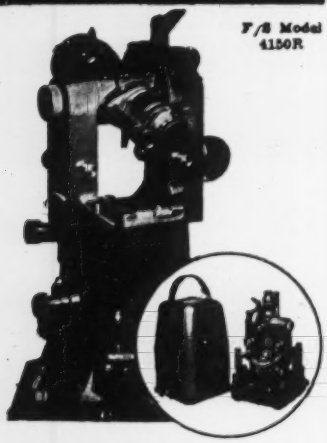

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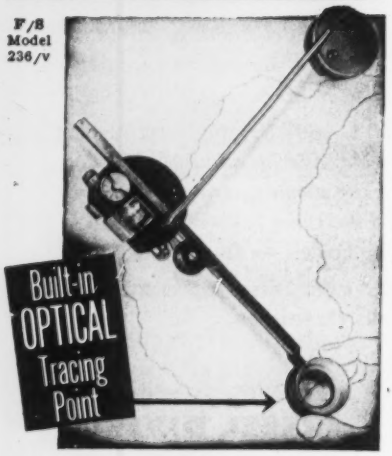

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Robert F. Boger
Publisher

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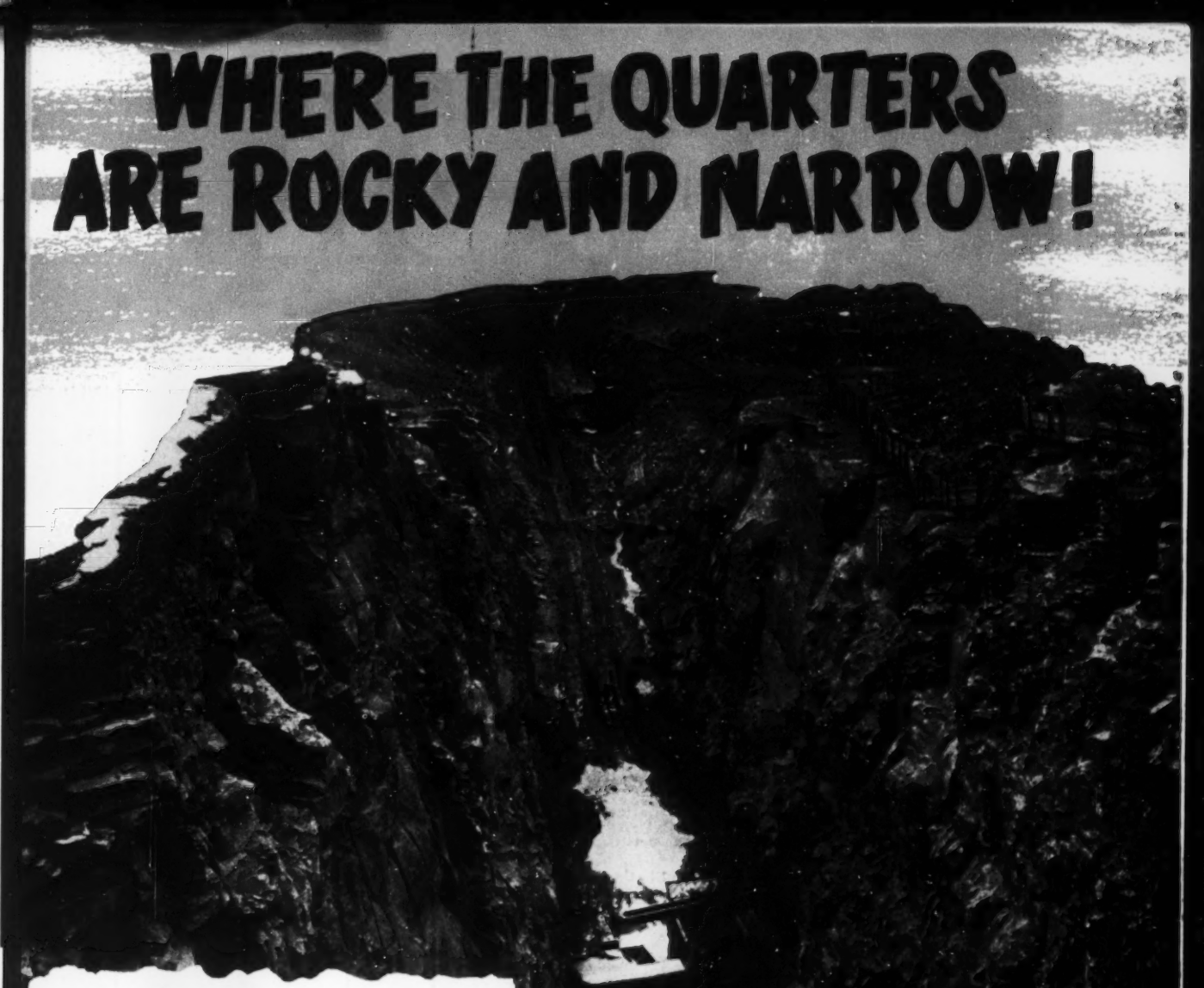
WHERE THE QUARTERS ARE ROCKY AND NARROW!



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Your Northwest is a *real* Rock Shovel. The Northwest Dual Independent Crowd utilizes force most other independent crowd shovels waste.

Uniform Pressure Swing Clutches, the "Feather-Touch" Clutch Control, smooth operating boom hoist equipment and Northwest steering and travel all combined give the operator every advantage in places like this. If you know operation try to get on a Northwest and learn for yourself. There is no better salesman to convince you that a Northwest will deliver the output you are looking for. Make your next machine a *real* Rock Shovel.

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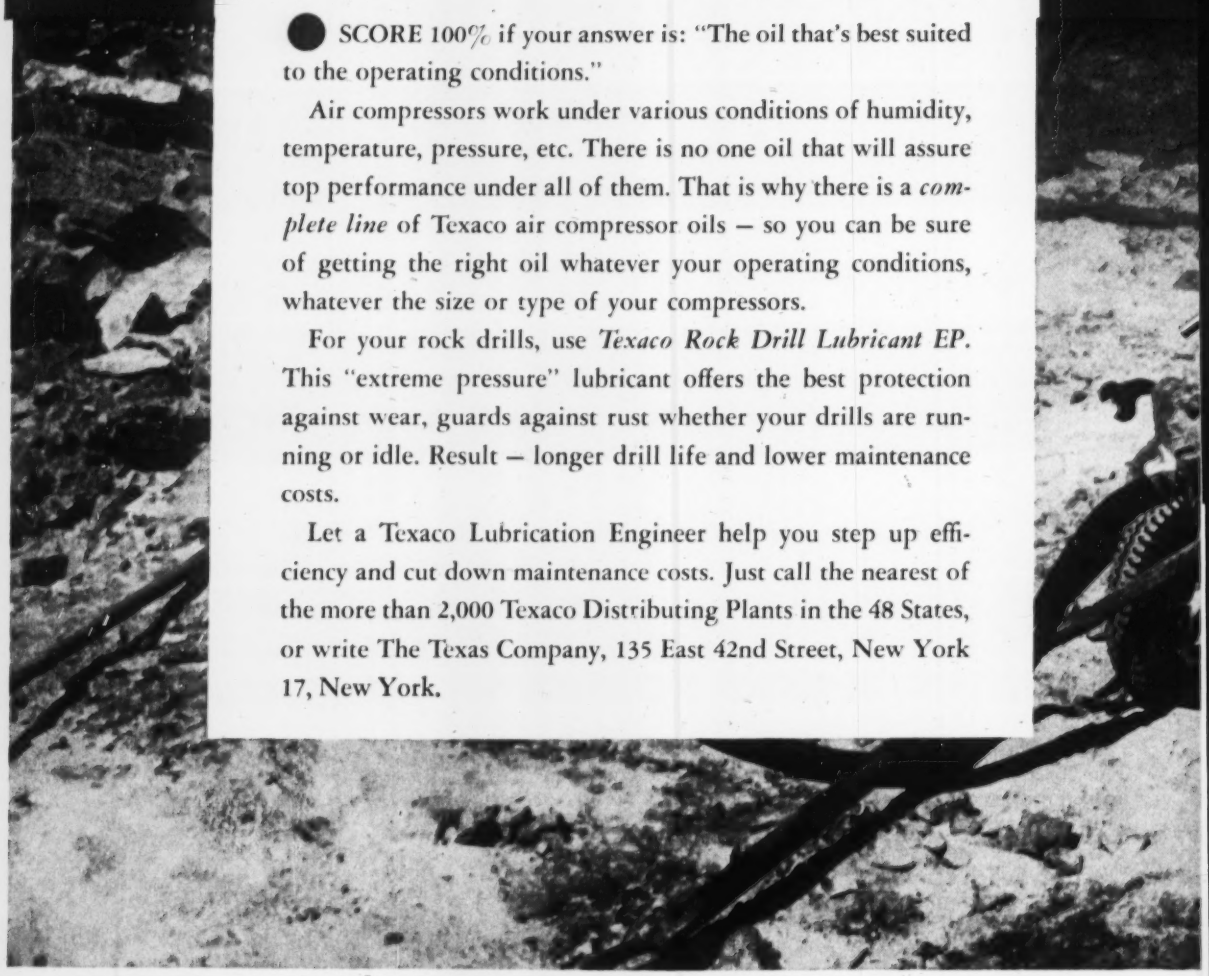
NORTHWEST

WHAT OIL IS BEST HERE?



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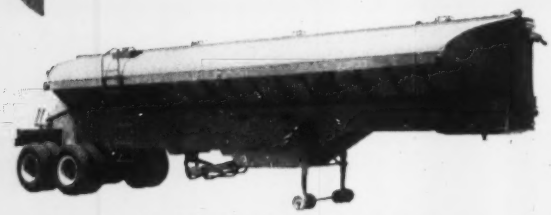
Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT

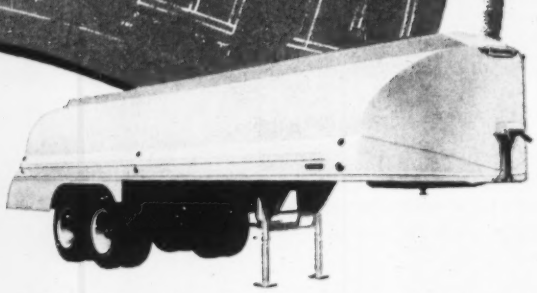
PLANNING A Project?

TRAILMOBILE CAN HELP YOU!

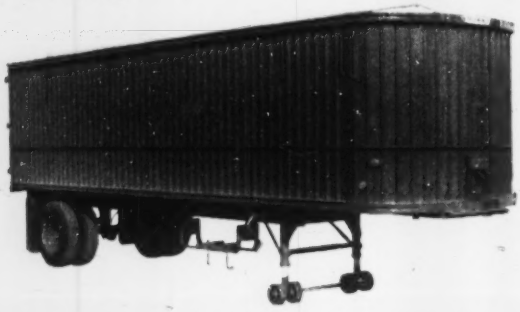
If you're planning a project or already have one under way that calls for the use of versatile trailers, Trailmobile has the right equipment to help you out.



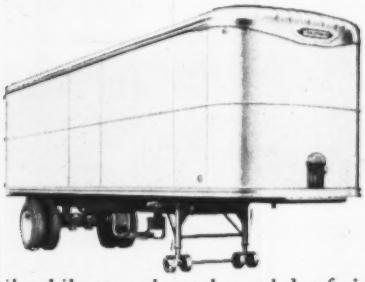
A Trailmobile Bulk Cementer can haul up to 150 barrels of dry cement per trip. Unloads completely in 45 minutes with patented step-down positive screw discharge. Available in either single or tandem axle models.



Trailmobile tank trailer provides a mobile gasoline, kerosene, oil or water station for all on-site equipment. Also available in acid, asphalt and special models built to meet your specifications.

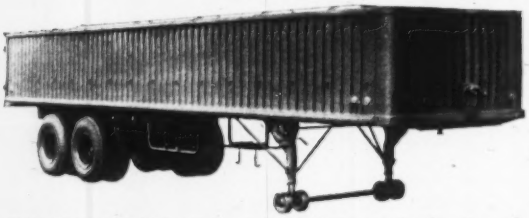


Here's a corrugated steel open top Trailmobile that answers problems of hauling bulky, concentrated loads which can be crane-loaded. This rugged model has an extremely high strength-to-weight ratio and it will quickly pay its way in durable performance.



The Trailmobile smooth steel panel dry freight van is the toughest and strongest in the Trailmobile line. It can take the punishment and abuse that rugged conditions can give it—for years. It's ideal for hauling equipment to and from the construction site.

To give you an idea of the strength in this Trailmobile platform trailer, its main rails are 15" deep. Trailmobile also makes this model in a Four Wheeler Flat. Either can carry maximum loads of lumber, pipes, steel, sheet metal, or what have you.



The Trailmobile steel rack trailer can be best used on construction jobs for all kinds of utility work. It's built to last!

YOUR NEARBY TRAILMOBILE BRANCH OFFICE OR DISTRIBUTOR HAS A LARGE VARIETY OF USED TRAILERS AVAILABLE FOR YOUR SELECTION.

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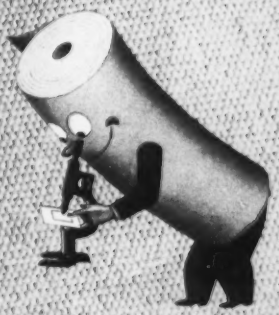

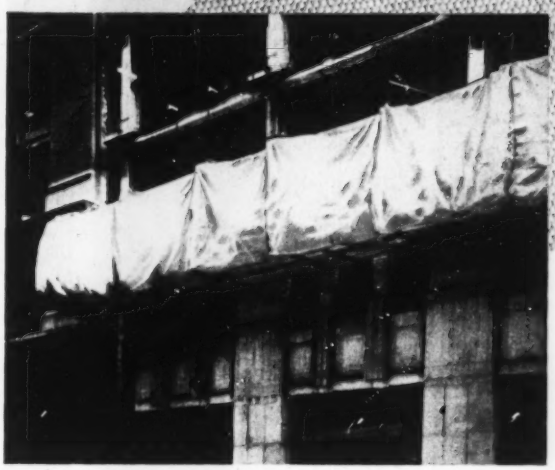

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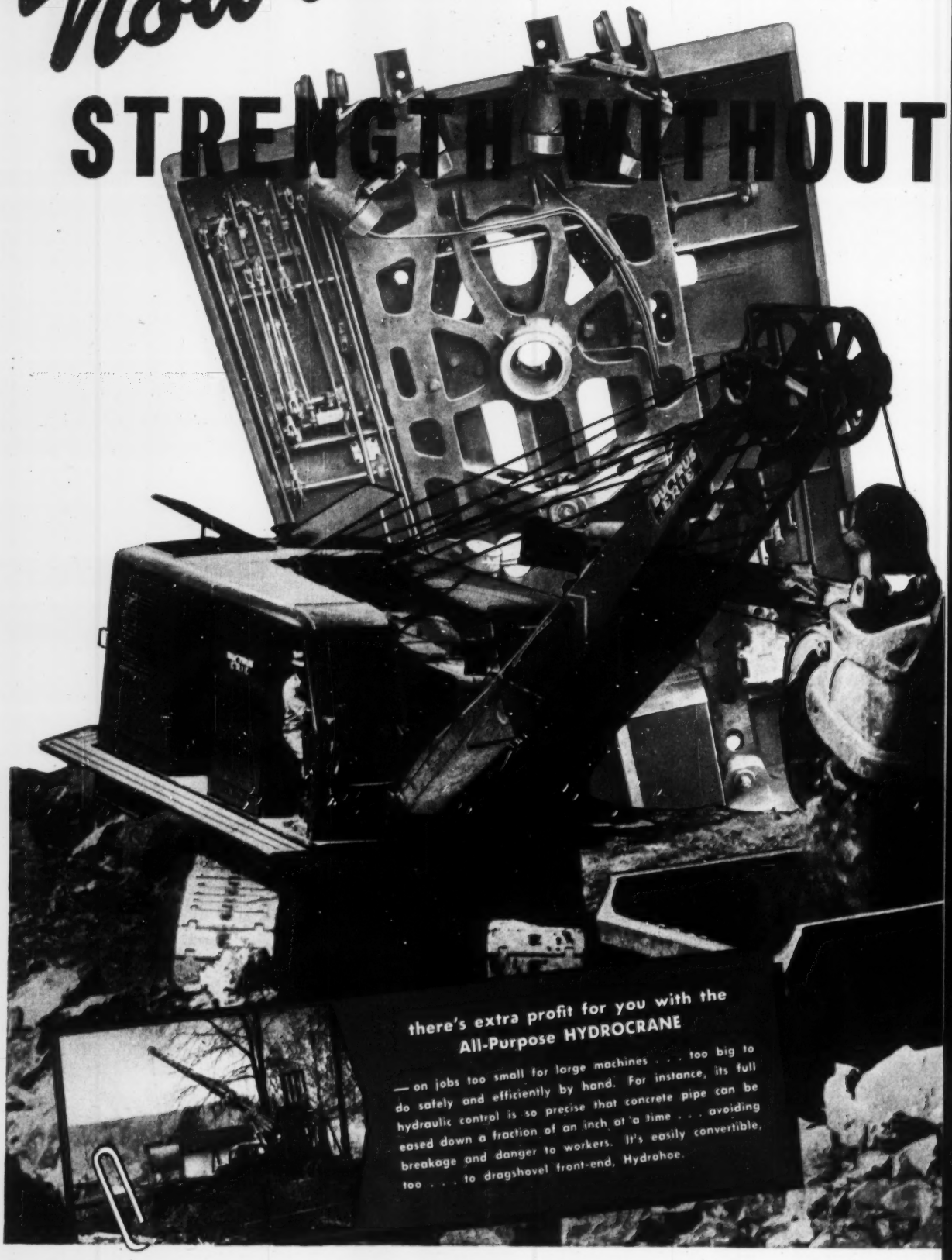

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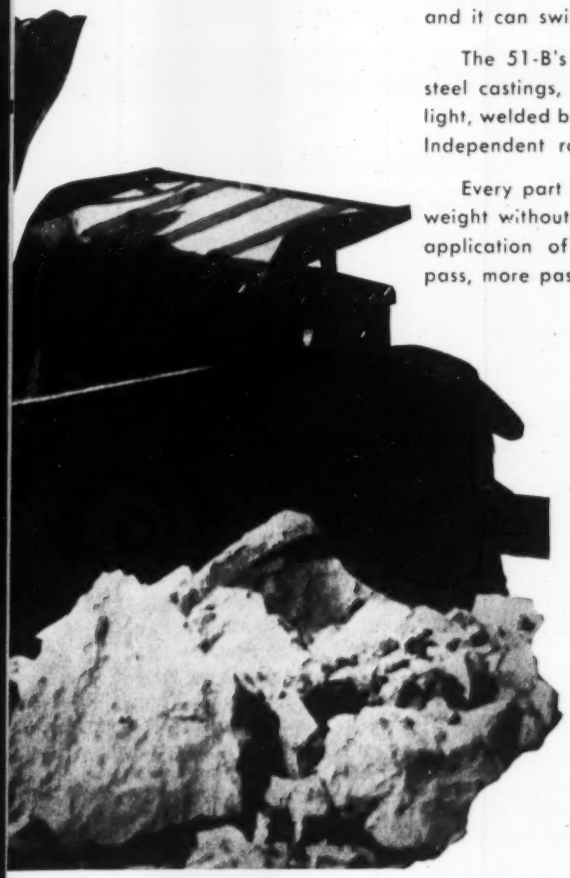

HERE'S an excavator that combines built-in durability with weight economy to give bigger output with less maintenance.

For instance, the 51-B's revolving frame is a single box-section casting of annealed steel . . . specially developed and cast by Bucyrus-Erie. This solid "backbone" provides real rigidity for machinery alignment — yet holds weight to a minimum. As a result, vibration is minimized in the 51-B . . . and it can swing fast, work at a profit-building pace.

The 51-B's truck frame and caterpillar side frames are single annealed steel castings, too — for strength with light weight. Boom and handle are light, welded box-sections that provide ample strength for all working stresses. Independent rope crowd eliminates the need for heavy boom machinery.

Every part of the 51-B reflects advanced engineering that cuts out dead weight without compromising strength. This means you get most economical application of power and lowest upkeep — with bigger payloads every pass, more passes every day. 66E52C

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Most Compared
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MODERNIZED PORT

○ *speeds shipping*
○ *simplifies handling*
○ *cuts mine-to-market costs*

Modern, high-speed Tournadozer spreads nitrate from conveyor discharge in storage plant, rehandles it later for delivery through hatchways to dock conveyor system.

When the new Nitrate Storage and Shipping Plant of Iquique, Chile, was opened last year under the auspices of the President of the Republic, it meant a great deal to the government, the mines, and the people of Chile in improving their world marketing position on a product of great importance to their national economy.

In its first year of operation, these new and very modern facilities, costing 61 million pesos, have shown their ability not only to reduce costs, but also to speed and simplify delivery of Chilean nitrate to world markets.

Major economies were made in:

1. Transferring storage from inland production plant to port, so that peak loads of railroad transportation and loading delays are avoided and costs reduced.
2. Mechanized unloading, storage, and reloading-to-ship operations utilizing a complete system of belt conveyor transportation so that handling costs are materially lowered.
3. Faster loading and adequate port storage that shortened ship time at dock, and eliminated ship delays waiting for nitrate, considerably reducing ocean transportation costs.

The entire Storage and Shipping Plant for the Port of Iquique was constructed and is operated by the Compania Salitrera de Tarapaca y Antofagasta for the Chilean Nitrate Sales Corporation.

Tournadozer speeds bulk storage

The two storage plants have capacity for 88,000 tons of nitrate. In them, a rubber-tired LeTourneau Tournadozer spreads nitrate for maximum storage capacity; later, pushes it through hatchways onto conveyor for delivery to ships. Tournadozer's blade carries average of 2½ cu. yds. of material. Rubber tires protect the concrete floors. This 19 m.p.h. dozer on rubber also does emergency hauling and maintenance around port and plant.

A survey of *your* material handling may indicate similar opportunities for use of modern machines and methods to improve your production and your marketing position. Your LeTourneau Distributor will be glad to study your problems and make suggestions that may prove profitable for you.

From car unloader to ship, handling is 100% by conveyor. Hopper feeds belt conveyor which delivers nitrate to shuttle conveyors in storage plants.

LETOURNEAU

R. G. LeTOURNEAU, INC.
Peoria, Illinois

READER COMMENT

Arena design explained

Sir: The question raised by Professor Powell (ENR March 19, p. 11) on the necessity for tied footings for the North Carolina State Fair coliseum is indeed a very valid one. In fact, during the design stage, we prepared a solution on this basis, and submitted preliminary sketches to the architect. This design was based on a buttress to carry the outward thrust of the abutting arches, and also to resist the lateral thrust due to wind loading, unequal temperature stresses, or a combination of both. The supports were also designed for unequal arch reactions for partial loading.

It is true that this design would have been somewhat more economical and direct, but the construction seriously interfered with the entrance requirements. It was also felt that since all the stability requirements could be met by a continuous sweep of the arches, such a method was far superior esthetically. A separate buttress arrangement would introduce a jarring note into an otherwise inspiring melody of form and function.

Fred N. Severud
Consulting Engineer
Severud-Elstad-Krueger
New York, N. Y.

Wells for flood storage

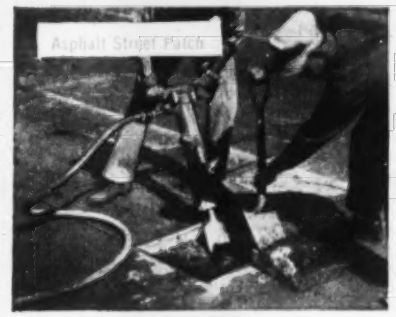
Sir: When water gets out of bounds we have floods; when it gets out of reach we have a water famine. To cure both of these conditions I would like to propose the sinking of deep shafts or wells in creeks, riverbeds, valleys and in all flood-ridden and water famine-stricken areas.

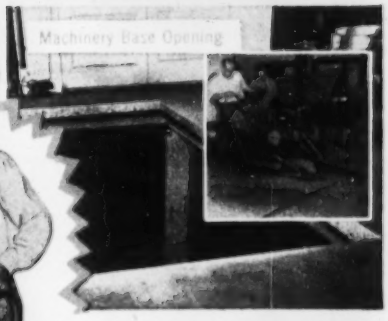
These wells would consist of large perforated pipes, built and sunk like caissons, reaching far down into the subsoil, piercing various strata, even rock, if need be. The top of such a subsoil well may be placed several feet above the ground or it may be level with it, depending on the critical water level. Covered by a grating and surrounded by a silt basin to prevent silting of the well, such a structure would absorb and disperse millions of gallons of surplus (flood) water.

Its purpose would be twofold: (1) Absorption of surplus water during rainy spells, cloudbursts, etc., prevention of soil erosion and loss of topsoil; (2) Replenishing the subsoil water reservoir with much needed water thus putting an end to the dreaded and frustrating water famine in many parts

(*Continued on page 14*)

ON THE JOB WITH A CLIPPER CONSAW





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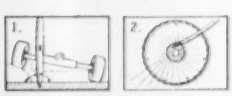

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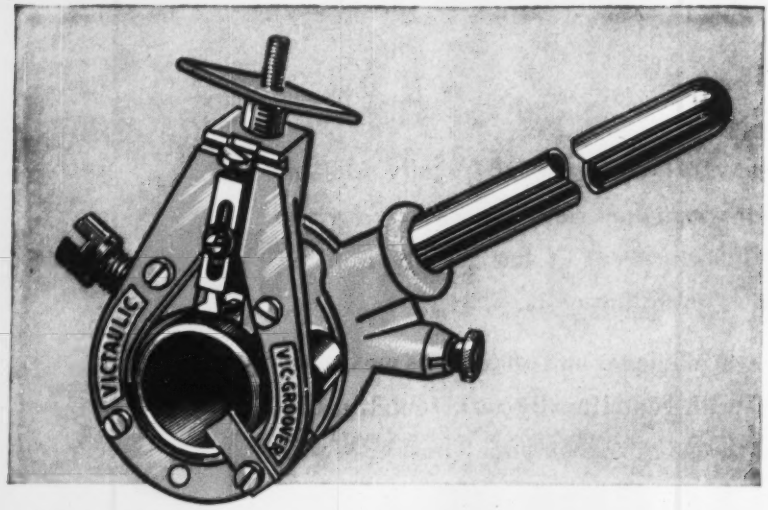

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READER COMMENT

(*Continued from page 10*)

of the world.

A complete water control program would call for a great number of such subsoil wells in strategic positions, particularly along the tributaries of the great rivers in flood-ridden areas, and in all areas where the subsoil water level is critically low.

FRANK D. STEINER
Orinda, Calif.

CALENDAR

Conference on prestressed concrete, Newark College of Engineering, Newark, N. J.—Apr. 6-9-13-16-20-23-27 and 30—7:30 to 9:30 P. M.

Building Officials Conference, Hotel Baker, Dallas, Tex., April 6-9.

Diamond Jubilee Convocation, Case Institute of Technology, Cleveland, Ohio, April 10-11. Topic, "The Challenge of Free Men in the Atomic Age."

Michigan Engineering Society, Michigan State College, East Lansing, Apr. 10-11.

Tennessee Highway Conference, University of Tennessee, Knoxville, Apr. 16-17.

Pacific N. W. Industrial Waste Conference, State College of Washington, Pullman, Wash., Apr. 16-17.

Connecticut Development Commission, annual conference, Hartford, Conn., Apr. 19-22.

N. Y. State Society of Professional Engineers, Hotel New Yorker, N. Y. City, Apr. 23-25.

National Engineering Conference, American Institute of Steel Construction, Engineering Societies Bldg., Detroit, Mich., Apr. 22-23.

Conference on residential air-conditioning, Packard Auditorium, Lehigh University, Bethlehem, Pa., Apr. 24-25.

Concrete Reinforcing Steel Institute, annual meeting, the Carolina Hotel, Pinehurst, N. C., Apr. 27-May 2.

Pacific N. W. Conference, ASCE, Seattle, Wash., Apr. 30-May 2.

American Water Works Association, annual meeting, Municipal Auditorium, Grand Rapids, Mich., May 10-15.

Conference on instrumentation in water, sewage and industrial waste treatment, Manhattan College, N. Y. City, May 14.

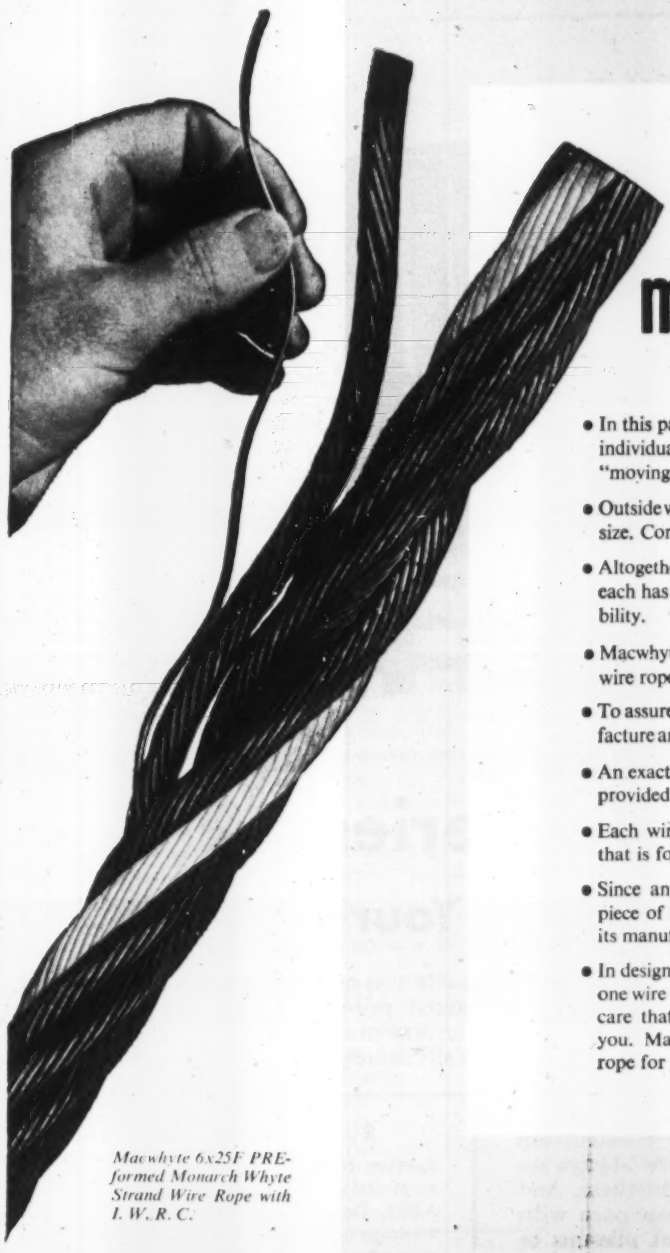
Biennial Inland Empire sewage works school, State College of Washington, Pullman, Wash., May 14-16.

Society of Fire Protection Engineers, Palmer House, Chicago, May 21.

Society for Experimental Stress Analysis, Hotel Schroeder, Milwaukee, Wis., May 20-22.

National Society of Professional Engineers, Sheraton-Beach Hotel, Daytona Beach, Fla., June 18-19.

American Society for Engineering Education, annual meeting, University of Florida, Gainesville, June 22-26.



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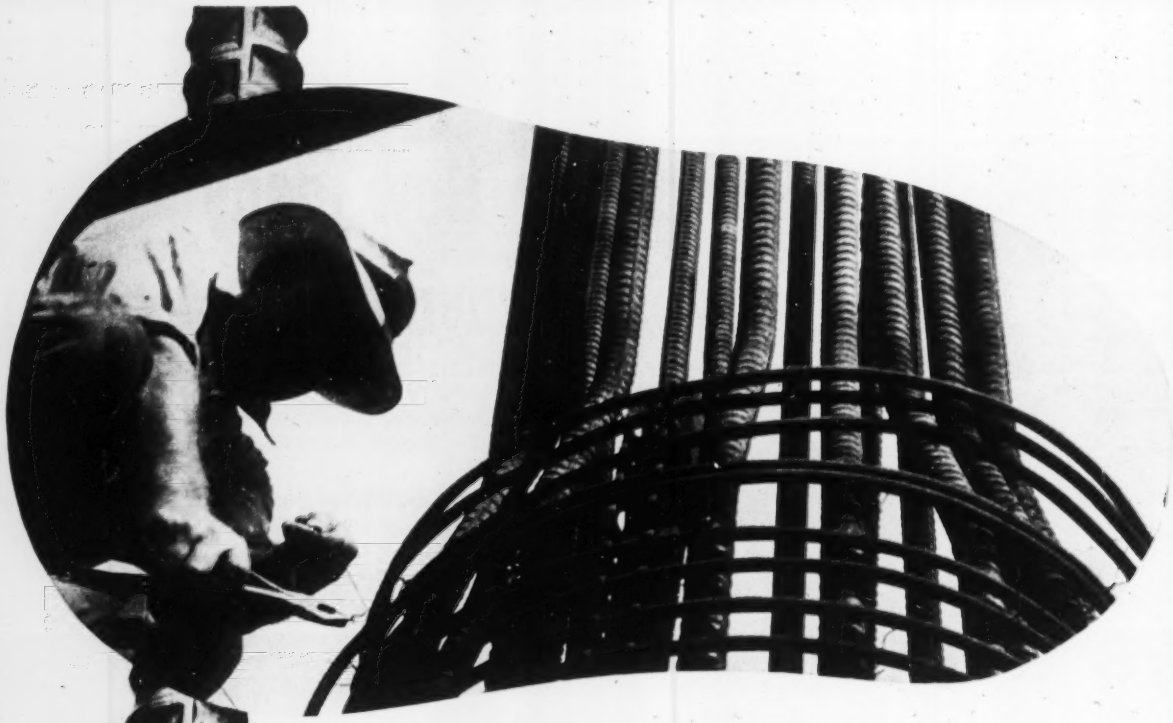

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THE CONSTRUCTION WEEK

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March 26, 1953 Vol. 150, No. 13

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- **Tape cutters**—With the backing of a strong assembly governmental efficiency and economy committee, California's legislature has tackled the problem of making cost-saving sense out of conflicting and overlapping building laws.

  The committee, headed by A. I. Stewart of Pasadena, has completed a four-year study—concluded the problem is too monumental for one-stroke solution. First step recommended is establishment of a state building standards commission to coordinate regulations.

  Under proposed legislation, the commission would have 10 members—including an engineer, an architect and a contractor—and would have as its first task the preparation of a state building regulation code.

- **Closer harmony**—Now that a committee of the Georgia legislature has thumbed down proposals for compulsory letting of subcontracts to subcontractors named in original bids by general contractors, there's an effort afoot to soothe tempers ruffled by the dispute over introduction of the measure.

  A group of plumbing, heating and electrical contractors proposed the law in 1952.

  Now the Georgia AGC chapter has announced it is working to "educate" members and subs "to advance the industry through better business relations and maintenance of high ethical standards."

- **Last word**—The final dictum was in from Canada on Alcoa's bid for water from the Yukon River to run a $400-million Alaskan aluminum plant.

  Canada—through its Resources Minister—said a flat and final "no." An official statement said, "as far as our government is concerned, the Alcoa plan is . . . a dead issue."

  Reason: Plans of Canada's own Frobisher Ltd. to develop huge power sources on the Canadian section of the Yukon, also for aluminum production (ENR March 19, p. 17).

- **The big count**—Getting set to decide what it must do to relieve its traffic headaches, Chicago is readying a $1.5-million survey.

  Meticulously it will chart movements of all forms of street transportation—including (the plan says) airlines.

- **All-over gas**—Coal miners, gas (for heating and cooking) companies and homebuilders in Western Pennsylvania are agreed: Gas (for heating) is a good thing.

  But miners are violently opposed to underground storage of gas near the mines, as proposed by gas companies—and homebuilders say their customers are so accustomed to gas heat that they won't buy houses unless gas is available. The gas men say: No underground storage near points of demand—no gas heat.

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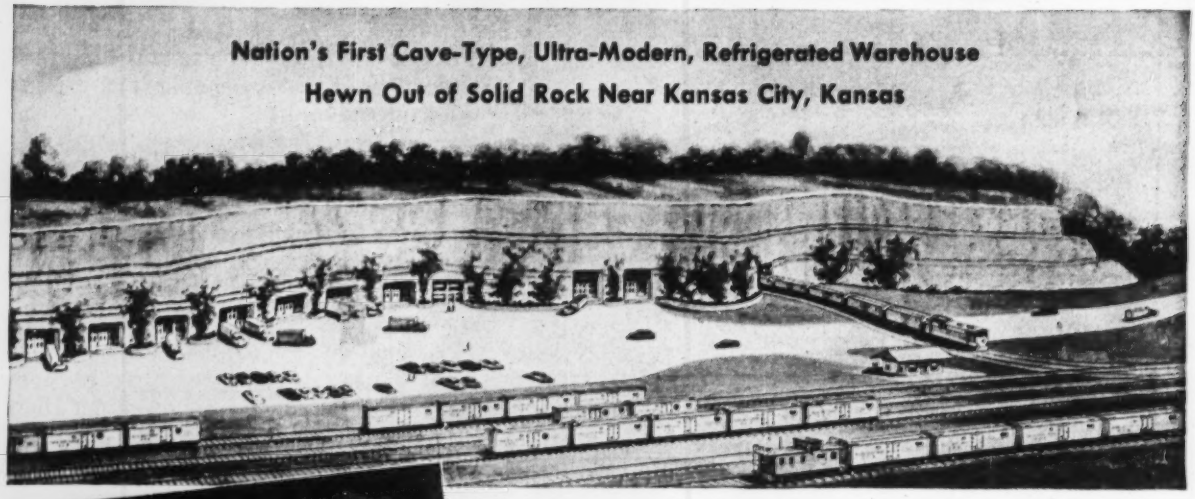

● Hewn out of limestone rock, with 72-ft.-thick roof, 40-ft. spans between solid-rock columns, and entry through a vertical ledge of stone, NATURAL STORAGE COMPANY's warehouse at Coldspur, Kansas, on the Union Pacific, 17 miles west of Kansas City, is a Gibraltar-like answer to modern-age storage problems.

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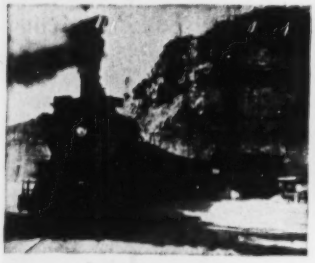

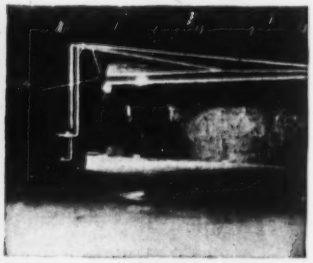

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Construction hiring under Taft-Hartley may not be eased even if Congress does amend the law this session. Up to now the outlook was that amendments would be passed permitting contractors to sign union shop contracts before beginning a job. Such an amendment got through the Senate last year.

Now sentiment against "compulsory union membership" of any kind is growing in Congress. It won't pass, but it could stop any loosening of present T-H rules on union shop.

AFL leadership is worried and switching its tactics. Originally, only AFL president George Meany was going to testify at Taft-Hartley hearings. Now Richard J. Gray, Building Trades chief, will go before the House committee to try to save the situation.

•

Federal money for highways will be maintained despite general budget-cutting by Eisenhower's men. First of all, agreements with states won't permit the cuts. And the Commerce Department budget-balancers, led by Undersecretary Walter Williams, are finding that highways rate high in Congress. They've already discovered that on supplemental funds voted for access roads, when Senate voted more money than Commerce asked.

Airport construction under Commerce isn't in quite the same category. Some cuts have been proposed to the appropriations committees. But airport construction—like highways—is popular back home, too.

•

Building materials producers are eyeing changes at Federal Trade Commission. It has been tough on many of them down through the years—lumber, cement, building equipment. It has changed selling practices in such key industries as steel and cement.

A business lawyer with long FTC experience is first man Ike has named to the agency. Edward F. Howrey, Washington attorney, handled FTC cases for Structural Clay Products Institute, private firms in brick, tile, clay business. His law firm handled more building materials makers.

There's chance for less prosecution, more cooperation although Howrey told Senators he's for enforcing every FTC law now on the books.

•

Patronage in-fighting is hot on Eisenhower's nominee to Federal Power Commission. Chairmanship may be at stake. Gov. Dewey and Attorney General Brownell back Willard Gatchell, FPC examiner who supports Dewey's plan to have New York build St. Lawrence power project. Other top Ike-men—Sen. Carlson, Rep. Cliff Hope, GOP Chairman Roberts—back Jess Robertson, Kansas corporation commission chairman.

•

Gas pipeline construction may be hit by Federal Power Commission action on fast tax amortization. Several big projects hinge on companies using amortization as an aid to financing—in effect providing the ready cash to build the line.

Now FPC staffers recommended tax benefits should go to rate-payers. This would send the pipeline builders back to the money markets—and without fast amortization working for them, they'd find money harder to come by.

•

Ammunition expansion plan is now on a crash schedule. The Gen. Van Fleet episode in Congress put an added urgency for more capacity. A contract for a $25-million shell manufacturing plant at Shreveport will be let by April 1, ground broken by April 20, and production rolling by fall. Secretary of Army Stevens is in Louisiana this week directing the speedup. More such programs will be launched by Army Ordnance this spring.

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Sunday Evenings — NBC Network

Construction boom launched with record first quarter

Surveys indicate continued upsurge in building—competition mounts—prices remaining stable

The construction industry gave assurances this week that it's enjoying a boom—the old fashioned type of boom with plenty of competition and knife-keen bidding.

ENR reports show a startling 37% increase in first quarter contract awards over the comparable 12-week period in 1952. Private construction, including housing, industrial and commercial building, is up 48%. State and municipal public works construction is 37% over first quarter of last year.

Only federal construction contracts, delayed by the fine-tooth review of projects ordered by the Budget Bureau, are off.

• **AGC reports optimistic outlook**—The record of the first quarter provides a good solid foundation for the highly optimistic results of a grassroots survey conducted by the Associated General Contractors of America for discussion at its annual convention in Miami.

The AGC survey, based on reports from 122 chapters representing more than 6,200 member firms, predicted that contract awards in the next six months will be well over the rate that led to last year's all-time record of $42.3 billion in total construction put in place, including maintenance and repair.

• **Not a fly-by-night condition**—Best of all, the boom that's shaping up is of the solid type, report builders and mortgage bankers interviewed by ENR in a number of key cities. Behind it is the tremendous pressure of the construction backlog that built up during the period of controls and allocations, and pushing it along is a substantial industrial expansion program.

Very few saw, in the upswing of construction activity, evidence of demand based on an attempt to beat out possible price increases or a tightening capital market.

In a larger sense, industry spokesmen attributed the boom to a revitalized spirit of business enterprise induced by the change of administration. They also credited the boom to the realization that the construction industry, now free of controls and better able to get materials, is in a position to tackle delayed and postponed private and public projects.

• **Fierce competition prevails**—Highlighting the changed construction picture is the intensely keen competition that has come into play. Despite the abundance of jobs coming into the market, the number of bidders per job rises steadily.

Where competition for construction jobs has been involving three to five bidders, recent openings have attracted up to 15. On 34 run-of-the-mill jobs let in the last month, 21 drew six or more builders; 13 attracted five or less. While on 14 earlier jobs, only two had more than five bidders and nine drew five or less.

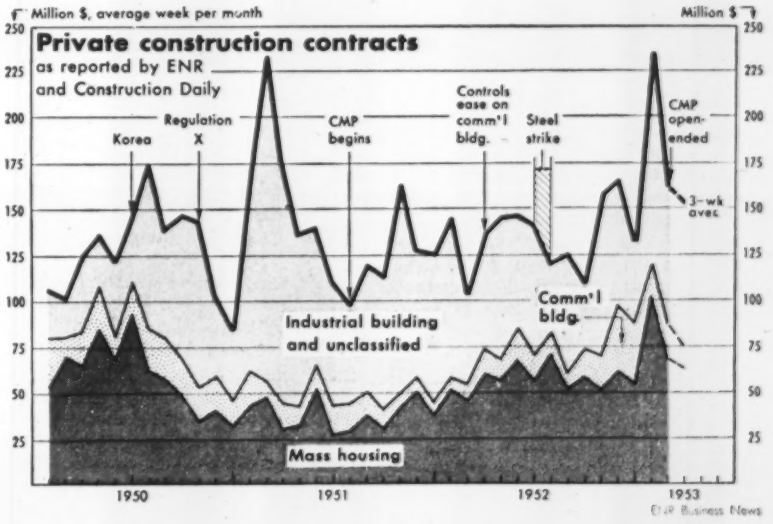
Many of the regional reports in the AGC survey termed competition the most severe since 1940. Reported one midwest contractor: "Competition has been terrific. Building jobs in this area are going at cost or less." A builder in the Middle Atlantic area declared: "Builders are reducing prices to an alarming and distressingly low extent."

AGC officers were interpreting the competitive surge as evidence of a return to the market of more and more contractors who have been discouraged from bidding because of uncertainties caused by controls. As an AGC spokesman pointed out, "Contractors now have some substantial assurance that they can proceed on job schedules set by themselves for maximum efficiency and economy."

The AGC survey seemed to indicate that contractors are bidding on many jobs simultaneously and loading up on projects which they are able to complete in fast time with new techniques and equipment. This is cited as particularly true in highway and heavy engineering work, where large-scale mechanization developed during the war, and under pressure of postwar defense demands has increased the industry's capacity considerably.

• **Price stability foreseen**—On the basis of the industry's highly competitive position, lower prices for completed construction jobs are predicted by AGC officers throughout the country.

Industry leaders' earlier predictions that decontrol would not lead to an upset in the materials price structure



(ENR Feb. 26, p. 21) have proved well-founded thus far. From all sections of the country AGC reports indicated a relatively stable price structure. Some construction firms reported paying lower prices for certain materials, and, there were reports of selective price increases. Middlewest and Middle Atlantic states, according to the AGC survey, appeared to have the most stable price structure, with pressure for higher prices strongest in the Southwest.

ENR reports indicate the current round of wage demands is meeting strong employer resistance, particularly where demands are predicated on cost of living. There is a willingness, however, to make wage adjustments based on productivity.

Intense competition also prevails among the equipment manufacturers. They expect business to equal last year's all-time high but realize they're going to have to do some hard selling.

• **Confidence is keynote**—Building activity in Chicago reflects the confidence that prevades the construction market nationwide. Industrial construction started during the first two months of this year in metropolitan Chicago was about 33% over the first two months of 1952. For the same period, private construction within Chicago city limits as reflected by building permits, is up 70%.

Chicago builders and mortgage bankers interviewed by ENR this week viewed the upswing as a logical aftermath of the building lull during the last quarter of 1952 when "industry was waiting to see the outcome of the election and how the new administration would function." An open winter has permitted much of the work to be started which normally would begin in late spring.

The over-all picture of industrial and commercial building in Chicago and the surrounding area is a healthy one, say construction men and bankers. There is an immediate demand, they assert, for new manufacturing plants and plant expansions to produce more civilian goods as well as military items.

An early spring has Milwaukee builders off to a head start with building permits running well ahead of last year. Wisconsin Telephone Co. will start construction soon on a $4.5-million addition to its long distance central office and has four other expansions costing $13 million under way. The city will put up a $4.5-million high school. Marquette University has three projects totaling $3.6 million under construction.

• **Boom has solid base**—A good healthy demand based on industrial expansion characterizes the building spree in southeast Florida. "None of the building under way now is hurry-up construction," says Frank D. O'Neal, general manager of the Miami Builders Exchange. "It consists of commercial and industrial facilities and housing we need to accommodate our high rate of growth. It is construction that would have been done sooner except for the uncertainty of the times and the controls imposed by the federal government."

Adds O'Neal, "I know of no scarcity of money to finance sound construction projects except GI homes and FHA-insured conventionals. Nearly all builders in this area expect interest rates to go up, but they're not worried about it. And, if the rates rise it won't stop our building boom."

Led by the $35-million to $50-million Ford assembly plant on which construction is scheduled to begin soon, industrial expansion scheduled in the San Francisco Bay area in the first two months of this year amounts to an estimated $120 million as against $5 million in same period last year.

No increase in building costs or borrowing rates would be serious enough to slow up the industrial expansions planned for that area except in marginal cases, in the opinion of construction men.

Budget review continues to bottle up awards for flood control navigation

The administration freeze on construction contracts is causing no cutbacks and little delay in the award of reclamation jobs. But strict instructions have temporarily slowed down the rate of contract awards for flood control and navigation projects by the Corps of Engineers.

Two factors are responsible for the slowdown. First and most important, the Army Engineers are holding construction awards for February and for March within the obligation ceiling established by the January award total for civil works.

Less restrictive is the second consideration: that no contracts be awarded which might exceed sums that the Buget Bureau may approve for the revised 1954 budget. The revised budget is now awaiting review. Meanwhile, the House Appropriations Committee has postponed hearings on Army civil works until the Budget Bureau—after conferences with the Corps of Engineers—comes up with administration figures for 1954.

• **Hope for early thaw**—Application of the two restrictions has not caused much damage so far to the civil works program. But continuance of the obligation ceiling through April and perhaps into May would cause a severe setback to the construction schedule. Contractors hope the Budget Bureau will act quickly on the civil works program for fiscal 1954.

For Army civil works, the big freeze came Feb. 19 when Secretary Stevens suspended further land acquisition and initiation or award of construction contracts on all projects, pending budgetary review of the entire program. The Army Engineers interpreted the stop order on initiating contracts to mean no advertising, no opening of bids, and no award of contracts.

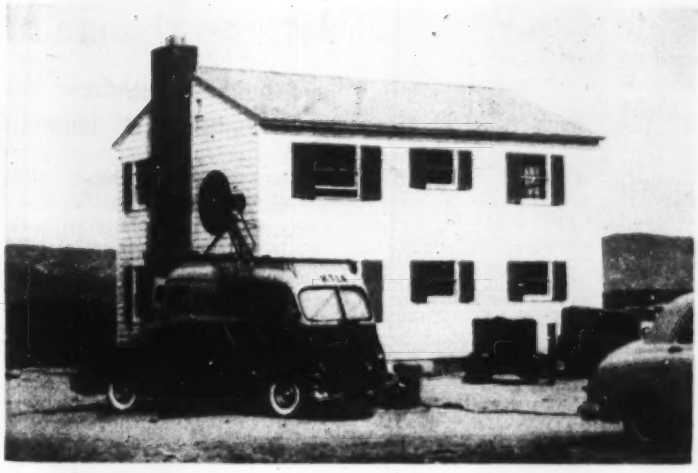
This strict interpretation was soon relaxed, and district offices were authorized to advertise for bids and award construction contracts on all projects that are more than 10% complete—except where the proposed contract involves a new unit of the project. This relaxation cleared the vast majority of projects and scheduled contracts.

• **Some projects cleared**—Cleveland harbor is a good example of a project where new units remain suspended for the time being. The harbor project is practically complete, and the completed portion is usable. But two bridges remain to be altered—to extend the usefulness of the project. The bridges are rated as new units; no action will be taken to advertise the alteration work until future money is in sight to cover the cost.

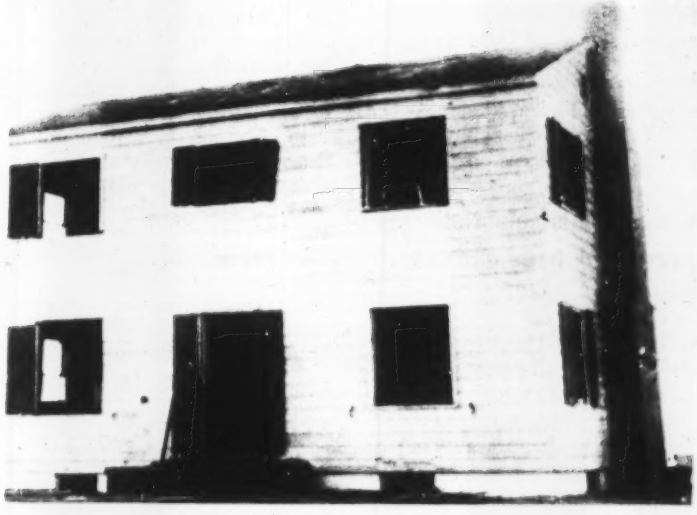
Some projects less than 10% complete have been cleared by Washington headquarters. An outstanding example is the Gavins Point Dam contract, for which bids had been opened before the freeze took effect (ENR March 12, p. 27). Washington has likewise cleared contracts for the Beaufort, S. C., navigation and power project and for Vincennes, Ind., flood protection works.

Other projects less than 10% complete are being studied with a view to authorizing award of new contracts. Among these projects—not yet cleared—are the Dalles Dam on the Columbia River, Oahe Dam on the Missouri, and the new lock for the Keokuk Dam on the Mississippi.

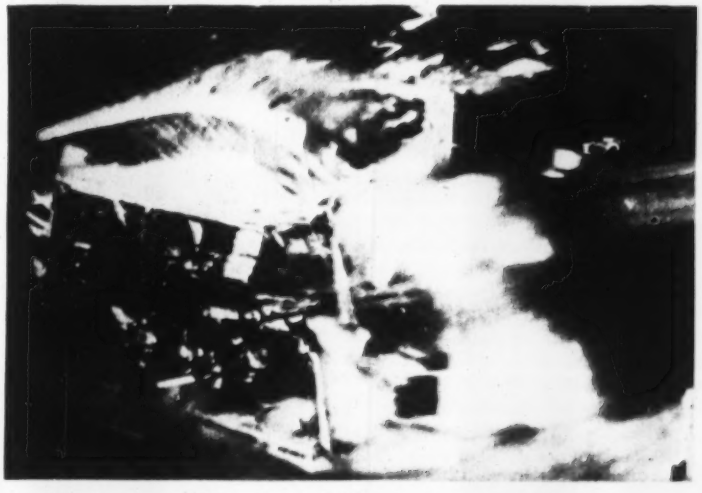
• **Deferred projects not out**—Deferring of any project, it is pointed out does not necessarily imply that the job is not included in the revised budget for fiscal 1954. Some of the suspended projects may be advertised after the Budget Bureau has reviewed and approved the 1954 program.



Test house No. 2 at 7,500 ft . . .



Survives blast but with heavy damage . . .



While house No. 1 at 3,500 ft is demolished.

Atomic test

Wood-frame construction fares badly; basement shelters hold up well

L. L. Wise
Associate Editor

Although a detailed analysis of the results of last week's atomic test must await security clearance, it was readily apparent that a relatively small nuclear explosion is seriously damaging to wood-frame construction which may be located within a mile-and-a-half radius.

Two houses, several bomb shelters and other building elements were subjected to the explosion of a nuclear "device" at the Atomic Energy Commission's Nevada proving ground. The charge rated at 15 kilotons equivalent to 15,000 tons of TNT apparently did as much building damage as the more powerful 20-kiloton Hiroshima and Nagasaki blasts.

The blast was part of the AEC's regular program of research on nuclear devices. The building tests were added by the Federal Civil Defense Administration working in cooperation with the AEC. Witnessing the test were some 600 federal, state and local Civil Defense officials as well as some 200 news media personnel—the largest press corps to view a detonation.

FCDA also tested 60 automobiles. And the Army conducted maneuvers that had more than 1,000 troops in trenches only two miles from the blast.

• **Similar to Japanese blasts**—The building tests were the most extensive ever conducted by the relatively new FCDA. They involved two identical wood-frame houses, one located 3,500 ft from ground zero and the other spotted 7,500 ft from the detonation. (Ground zero is the point on the ground directly under the detonation.) The charge was exploded at the top of a 300-ft tower. This might be one explanation as to why the blasts seemed to be as damaging as the results caused by the more powerful A-bombs that were dropped during World War II.

According to Prof. H. L. Bowman of Drexel Institute of Technology, who served as an AEC consultant in evaluating Japanese structural damage, residences in Japan 7,500 ft from ground zero were uninhabitable without extensive repairs. (See also his article in ENR, "Bombs vs. Buildings," Jan. 26, 1950, p. 24). This was precisely the

condition of the FCDA house located the same distance from the blast.

Reason for the extent of the damage in Nevada may be that the detonation was at 300 ft rather than much higher as in Japan. Of course, these comparisons are rather tenuous because they deal with broad averages. More powerful charges—such as the 50-kiloton bomb that FCDA uses in planning work or the 150-kiloton size that the H-bomb might reach—will result in more serious damage.

• **Basement shelters tested**—Design of the units was one of ten selected by FCDA with the cooperation of an American Institute of Architects committee as being typically American. Had funds been available other designs such as masonry buildings would also have been tested.

The test buildings were two-story, wood-frame units about 24x30 ft in plan with a full basement having a concrete slab floor and cinder block walls. Floors were built with typical platform framing with 2x8 joists spaced 16 in. on centers. The joists were topped with both sub-floor and finished floor. Interior and exterior walls had 2x4 studs 16 in. on centers with interior walls plaster finished. Exterior walls had sheathing and beveled siding.

Located in the basements were two inexpensive home bomb shelters—one a timber lean-to and the other a wooden box-like structure. One of the primary FCDA objectives was to test the efficiency of these units. The house at 3,500 ft from ground zero was completely demolished. But the basement shelters held up and would have protected occupants from falling debris. The fact that the debris did not burn also was a favorable factor. Nothing was released on whether the shelters would have afforded protection from radiation.

• **Floor joists badly damaged**—The second house at 7,500 ft from ground zero was left standing but badly damaged. It was considered too hot from a radiation standpoint to permit news observers to enter. But an AEC-FCDA team entered long enough to render a brief report.

The most severe structural damage was to living-room floor joists spanning 12 ft parallel to the face of the house. About 75% of the joists were broken at midspan. The shock wave was estimated in advance to be 2 psi on the face of this second house. All front windows and some back windows were reported broken inward. Interior doors of rooms and closets were wrenched from hinges showing a decided shock effect inside the house. Perhaps this explains rupture of the longer span joists. They were also pulled away from the headed beams around the fireplace.

Floor of the central hall with a 6-ft span was undamaged; dining room and kitchen floors with an intermediate partition showed less damage then the living-room floor.

No damage was reported to the second floor. This could be because pressure was equalized on both sides due to broken windows on the first and second floors. Basement windows were so small that equalizing pressure probably didn't build up there.

Interior wall damage consisted of plaster cracks indicating frame movement. The roof was badly damaged.

• **Backyard-type shelters**—Beside the basement shelters, FCDA tested eight more expensive backyard-type units. One, only 1,200 ft from ground zero, was said to have safely withstood the blast structurally.

FCDA also set up a series of concrete cells open at front and back. In these cells were placed a variety of wall panels and partitions of the kind used in "normal construction." Where these units were located and the type of panels tested was not revealed.

Muscle Shoals selected as new TVA headquarters

TVA announced in Knoxville last week that it would move its headquarters offices to Muscle Shoals, Ala., where it will lease a projected office building near the Wilson Dam reservation. The building will not be ready, however, for another 18 months.

The proposed move, which Tennessee congressmen will fight in Washington, will not affect the engineering division.

A just solution

Dr. Arthur H. Compton, Nobel Prize-winning atomic physicist, turning his talents to civil engineering, has designed a bumpless bump as a means of discouraging speeders without at the same time penalizing slow drivers on campus roads at Washington University in St. Louis.

Present asphalt ridges, two feet wide and seven inches high, force motorists almost to a complete stop or penalize them with a sharp jolt. A compromise plan devised by Dr. Compton, the university's chancellor, would spread the bump over 26 ft, leaving the same rise but providing an even slope. Thus, slow drivers would be spared the jolt while speeders would continue to experience a teeth-chattering jar.

License change out

Backers withdraw bill to change N. Y. license law

Convinced—after more than a month of hot verbal battle—that they could not muster enough votes on the legislature floor, sponsors of a bill to modify New York State's laws governing engineering practice withdrew the measure last week.

The withdrawal came as the controversial amendment (ENR March 12, p. 21) was about to reach the floor of the Assembly at Albany. The amendment, known as the Bennett-Carlino bill, would have permitted the corporate practice of professional engineering, by requiring that the chief executive officer in charge of engineering for a corporation, and any other persons doing engineering work, be licensed professional engineers.

Sponsors of the amendment said last week they had not determined what further action they might take on the matter.

In effect, however, the result of the defeat at Albany appeared to put out of a phase of their business a number of large corporations formed either after the effective date of the original law (1935) or with headquarters in other states. Under the provisions of the original law, such corporations cannot practice or offer to practice professional engineering, except under special circumstances (including installation of equipment manufactured by them).

• **Background**—The fight over the law started nearly a year ago, when a 1952 amendment made it mandatory that all corporations doing professional engineering register with the State Board of Engineering Examiners and receive certificates from the board (corporations in existence before 1935 were permitted by the law to continue practice). Since most of the corporations were formed either out-of-state or after 1935, they faced the threat of business death after the deadline registration date of March 1, 1953.

Their answer was the Bennett-Carlino bill, which sought to amend the flat prohibition against operation of any but "grandfather" corporations.

The result was one of the hottest verbal battles in the state's history, with the New York State Society of Professional Engineers lined up (with support from ASCE's Metropolitan Section and other groups), against seven major engineering-construction-manufacturing corporations, who supported the bill.

Rail modernization

AREA convention hears need for planning

How to develop new sources of revenue from freight handling and other transportation services—while retaining present volumes of business—got first-hand attention last week in Chicago at the 52nd annual meeting of the American Railway Engineering Association.

That such action was necessary, was emphasized by James H. Aydelott, vice president, Association of American Railroads, who warned that without adequate planning some railroads may encounter serious loss of business, "if there is even something less than a full scale transition from a wartime to a peace-time economy."

He pointed out that much of the present-day long-haul, large-volume railroad freight is made up of military machines, equipment and supplies for overseas shipment. As this source of revenue begins to slacken, the traffic volume potential may well be determined by the efficiency of railroad service, and how well it meets industry's shifting pattern of manufacture and distribution.

• **Economy tips**—Economies of operation can be effected, he said, by modernizing freight terminals to reduce switching costs and minimize loading delays; by greater mechanization of maintenance-of-way work; additional research leading to the movement of greater tonnages of freight at higher sustained speeds; and the relocation of main lines to reduce grades and shorten the distance between terminals.

"Decentralization of industry may not produce the longer hauls of raw and finished materials that we are enjoying today," concluded Aydelott, "but it might save the abandonment of a sizable mileage of railway lines on which patronage under present conditions has nearly reached the vanishing point."

Similar views on reducing operating costs and improving revenue were expressed by L. K. Sillcox, vice-chairman of the board, New York Air Brake Co. More efficient operations, said he, and reductions in shipping-time, rather than increasing freight car inventory, offer the railroads their best opportunity for economic survival in our current competitive transportation market.

He also warned that railroads are faced with an immediate need to administer operating time as capably as they have done with respect to tonnage-ratings of trains.

NEW PRESIDENT of AREA is Charles G. Grove, chief engineer of Pennsylvania Railroad's Western Division at Chicago.

• **Continued research**—The Association of American Railroads will continue its expanded research program this year, reported G. M. McGee, director of engineering research, of AAR.

The association plans to build a new mechanical research laboratory near its present laboratory on Chicago's near south side. One important current project is the possibility of increasing the standard length of rail from 39 ft to 78 ft.

During the last year, said McGee, nearly one-third of our research activities were devoted to research work on railroad bridges.

The projects include: tests on a new type of concrete-filled steel pile trestle; steel piles with concrete-beam caps for railroad bents; reinforced concrete pipe ranging from 24-in. to 84-in. dia; high-strength bolts in lieu of rivets; and fire-retardant paints for bridge structures. Field tests to determine live load and secondary stresses on the Santa Fe's bridge near Topack, Ariz. have been completed, he said. This double-track bridge was completed early in 1945 (ENR June 21, 1945, p. 62).

• **Officers**—Charles G. Grove, chief engineer of the Pennsylvania Railroad Company's Western Division, Chicago, was elected president of AREA, succeeding C. J. Geyer, vice president in charge of construction and maintenance, Chesapeake and Ohio Railway. G. W. Miller, engineer maintenance-of-way, Canadian Pacific Railway, was advanced to senior vice president, and G. M. O'Rourke, assistant engineer maintenance-of-way, Illinois Central Railroad, was elected junior vice president.

Controls system

Defense Materials System to replace CMP

Something new has been added to Washington's alphabetical jargon: DMS (for the Defense Materials System). That's the new materials controls system, announced this week by the National Production Authority, to take effect July 1, when the present Controlled Materials Plan runs out.

Basically, DMS machinery will be similar to that of CMP. But there's one big difference: under CMP steel, copper, and aluminum were allocated to all consumers—both defense and civilian; under DMS non-defense consumers are completely on their own.

DMS allotments will be made only to defense contractors and subcontractors for procurement of steel, copper, and aluminum. They'll also get preference ratings for purchases of tools, components, and other equipment.

The construction industry will be governed by DMS Regulation 2. The only construction contractors to be affected will be those working directly on Defense Department or AEC projects and extra-special defense-supporting jobs. All other construction work is exempt from metals allocations and priorities assistance.

Here's how the construction regulation will work:

Holders of Defense Department or AEC contracts, their subcontractors, and their suppliers of "Class A" product building materials apply for metals on form DMS-4C, a modified version of the old form CMP-4C. Allotments will be made quarterly for carbon steel (including wrought iron), alloy steel (excluding stainless), nickel-bearing stainless steel, copper and copper-alloy, brass mill and foundry products, copper wire milled products, and aluminum.

NPA will direct steel, copper, and aluminum producers to reserve specific tonnages for defense-rated business. Outside of that, the mills will be able to take care of civilian business without restriction.

Aside from direct Defense Department and Atomic Energy Commission contractors and subcontractors, DMS allotments will be made also to selected defense-supporting consumers, but the government will be stingy in this regard. The Pentagon or AEC will have to certify projects of this type specifically. Examples: an electric utility plant to power an atomic energy project, a factory to supply realy critical equipment to a military contractor.

Water becoming prime problem in industrialization of southeast

Policies that attempt to preserve usefulness of streams seen affecting future industrial building in area

"We're growing down here."

This understatement was the keynote of last week's deliberations by the second Southern Municipal and Industrial Wastes Conference as it considered the role of clean streams in the expanding industrial economy of the Southeast.

Lively discussions of the two-day conference held at Chapel Hill, N. C., raised many questions and left some unanswered in the minds of the 140 registrants. But, these impressions emerged clearly:

• **The southeast booming**—New industries and population growth are combining. North Carolina has 2½ times the manufacturing operations it had in 1939. It leads its neighbors in industrial operations, claimed Walter W. Harper, industry promoter for the state's Department of Conservation and Development. More than half of the new plants built last year are in the metal-working industry; chemicals, paper and electrical equipment outfits are coming, too, to broaden the old textile-tobacco-furniture base of Tarheel State commerce.

• With the region's industrial growth, water is becoming a prime problem in plant location—not just water for supply, but water for waste disposal; which, as a vital economic, social and technical factor, is growing with the region.

• Correction of existing problems of stream pollution, along with prevention of new problems, is the task of the state regulatory agencies. But arbitrary demands for near-complete elimination of stream pollutants in industrial effluents will jeopardize all hope of attracting new industry, warned a representative of old-industry, E. I. du Pont de Nemours & Co.

• Water and waste problems could be left entirely to the industry interested in coming in, but if towns and cities just sit back with that do-nothing attitude, prospective industries will settle elsewhere.

• **Sharing disposal costs**—What cities can do, especially in the growing trend toward treatment of industrial wastes at municipal sewage works, was the subject of a lively panel discussion.

Moderator of this discussion was F. W. Mohlman, director of laboratories in the Sanitary District of Chicago. Citing Chicago's 7,000,000 population waste equivalents from a 4,000,000 population as evidence of how much industrial waste goes through Windy City sewage works, Mr. Mohlman said, "it is usually true that industry can save money by combining its wastes with the municipality's and assuming its just share of the cost of treatment."

Just shares of the disposal costs were the subject of panel-member Richard Hazen, Hazen and Sawyer, New York. He recommended the basic principles set forth in the monumental cooperative report on rate structures for water and sewage service, published by the ASCE, the American Bar Assn. and other cooperating groups (ENR Nov. 22, 1951, p. 24). Hazen then advised that these principles could not be followed exactly in many states without a change of existing laws, and said approximations based on a rational method were more desirable than strict adherence to some formula that is unfair.

• **On viewpoints**—Communities must be fair, if they are to attract industry, said H. A. Trebler, of the National Dairy Research Laboratories.

"Industry is as much a part of the community as any individual—more so, industry can't pack up and move as an individual can.

"There is no industry viewpoint distinct from a community viewpoint." There must be a "joint point of view," Mr. Trebler said.

"It pays to treat wastes (municipal and industrial) together," he continued. "Therefore industry is much concerned about cost of sewage plants. The fantastic amount of money spent gives quite a shock—especially when we get our so-called fair share."

Sewage treatment plants cost more than they should, and maybe industry's engineers have been negligent in obligation to offer cost-cutting suggestions, he concluded.

H. H. Black, U. S. Public Health Service industrial wastes specialist from Cincinnati, was less demanding than Mr. Trebler on the engineer from industry, suggesting merely in his part of the panel discussion that the engineer familiarize himself with the sewage treatment plant and its operation. The city, in turn, should strive for a flexible plant with room for expansion that will absorb the addition of industrial loads.

• **Readying wastes for sewer**—Pretreatment of industrial wastes, before discharge into sewers and the sewage treatment plant, was a practice favored by more than one speaker. The small municipality and the large industry may meet an impasse unless wastes are pre-treated by industry, said Mr. Mohlman.

Attitudes on trying new processes ranged from "the conservative" to: "we have got to be more venturesome." The latter attitude was expressed by A. H. Paessler; who is executive-secretary of the Virginia State Water Control Board.

A fast-growing young (12-year-old) industry that has a research program trying several methods of waste treatment is Ecusta Paper Corp. at its cigaret paper mill on French Broad River at Pisgah Forest, N. C. M. O. Schur, manager of research and development expressed industry's willingness to cooperate with control agencies as well as with other industries by exchange of any information other than production or product secrets that would endanger competitive position. Regulatory agencies may find larger industries ready to help smaller ones with advice—even with tests—he suggested.

Report now out citing objections to Incodel

The report of engineers advising Pennsylvania's Water Resources Committee is now in print. The committee some weeks ago reported to Governor Fine that Pennsylvania should not become a party to the Incodel Compact, submitting instead a substitute water supply plan of its engineers for southeastern Pennsylvania (ENR Feb. 12, p. 21).

The report now published is by an engineer's study committee of three firms: the Chester Engineers, Gannett, Fleming, Corddry & Carpenter, Inc. and Greley and Hansen.

These engineers' findings conclude that Pennsylvania has no real need for the Incodel plan. Their report states that low-flow augmentation in the Delaware River from the first stage of the Incodel plan would cost Pennsylvania upwards of $46 million, and that it would have slight effect on stream sanitation, no effect on salinity in the Chester-Marcus Hook area and questionable benefit to the state's shad or oyster industries.

They say future needs can be met by reservoirs within Pennsylvania along with a New Jersey-Pennsylvania reservoir on the Delaware at Wallpack Bend (ENR Feb. 19, p. 48).

Francis V. du Pont appointed Federal Public Roads Commissioner

The expected appointment of Francis V. du Pont of Wilmington, Del., as U. S. Public Roads Commissioner (ENR March 12, p. 28) was made last week by Secretary of Commerce Sinclair Weeks.

Citing du Pont's 27 years' service with the Delaware State Highway Commission, including 23 years as its chairman, Secretary Weeks termed the appointee "nationally recognized as one of the foremost administrators of public highways in America."

During his long tenure as Delaware's chief highway official, du Pont was the prime mover in developing what is recognized as one of the most modern public road systems in the country. Under his guidance the dual highway system was inaugurated and the Governor Printz Boulevard along with many other important roadways were constructed.

His last important state service was in planning for the construction of the Delaware Memorial Bridge. This project was completed in the summer of 1951, after he had left office.

A graduate of Massachusetts Institute of Technology, du Pont in addition to his highway activities has been active in hotel and building management. In 1948, he received a citation of distinction from the American Association of State Highway Officials.

Mr. du Pont will assume his duties April 1 upon the retirement of Thomas H. MacDonald, who has headed the U. S. Bureau of Public Roads since it was established as a division of the Department of Commerce in 1919.

Salt water barrier engineering study asked

Gov. Earl Warren has given his support to a bill in the California legislature to appropriate $500,000 for a comprehensive engineering study of a salt water barrier in San Francisco Bay.

Legislative supporters plan to push for early enactment of the measure. Temporarily, however, a difference of opinion on the scope of the study is presently blocking immediate action.

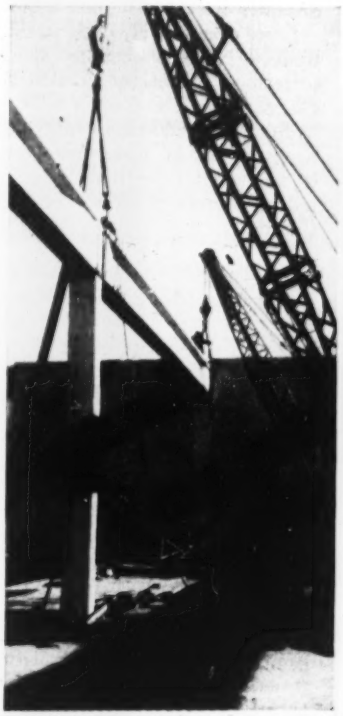
San Joaquin Valley legislators want the investigation limited to a probe of the feasibility of the barrier as a means of creating a new source of water for irrigation purposes.

Bay area legislators—and Gov. Warren has indicated he shares this view—want an all-inclusive study to determine the merts of the barrier or system of barriers for a fresh-water supply, vehicular crossings, land reclamation, salinity control, recreation and other benefits.

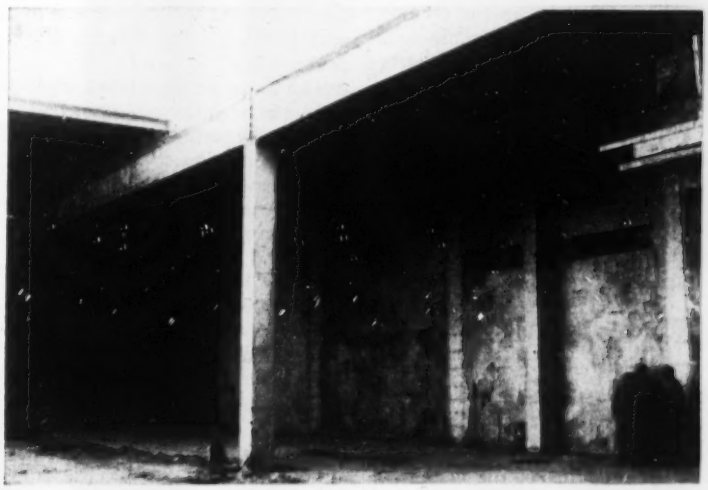
Standards to be devised for prefabricated homes

The Prefabricated Home Manufacturers' Institute will devise standard test procedures for the industry as a result of a decision taken at its annual meeting which was held in Chicago last week.

A committee of manufacturers' representatives on design, engineering and research will evaluate new developments in prefabricated home-building and establish the standards. The program will tie-in with community building codes and with construction requirements that have been established by the FHA and VA.



PRESTRESSED BEAMS 57 ft long were erected on cast-in-place columns, 18 ft above floor level.



PRESTRESSED ROOF DECK spans 22½ ft between beams atop a refrigerated warehouse in Denver, Colorado.

Warehouse roof prestressed

A prestressed concrete roof with an area of 35,000 sq ft was built at a cost of $51,867 for the new Beatrice Foods Co. warehouse in Denver.

Roof beams for the one-story building are mostly 3½-ft deep precast I-beams spanning 57 ft. Made of 6,000-psi concrete, they are prestressed with 9 cables in flexible electric conduit, end anchored by the Freyssinet method.

The roof deck consists of 5-ft 8-in. by 22½-ft precast units, each made up of a 1¾-in. thick slab and a pair of 6x8-in. joists. The joists are prestressed with bridge strands bonded to the concrete.

Prestressed Concrete of Colorado, Inc., erected the roof. Nat Sachter was consulting engineer.

Arizona legislators counter court ruling by halting well drilling

Arizona's legislature—acting in response to a State Supreme Court ruling that groundwater belongs to the landowner—rushed through in a week's time a bill blocking until March 31, 1954, the drilling of new irrigation wells in large sections of the state.

Governor Howard Pyle said the law sets the stage for a court test to determine the legislature's police power under the Supreme Court decision of the previous week.

The bill also empowered the State Groundwater Commission to write a groundwater code. The Groundwater Act of 1948, which set up regulation of drilling, lacked a workable police power.

• **Gold-rush well digging**—More than 70 wells have been drilled without the permits which were required by the 1948 act.

Consensus is that there is a sufficient loophole in the drilling freeze order which would permit them to be legalized.

Another loophole for new wells is a provision permitting completion and use of all wells which in the opinion of the State Water Commissioner were substantially under way before the act became effective and allowing a maximum of six months for completion.

In the few days that elapsed between the Supreme Court decision and the legislature's act, drilling units were kept hustling making preparations for new wells. Legislators say there's no telling at this stage whether "one or one hundred" new wells were started in that time.

• **Court makes split decision**—The State Supreme Court had declared that groundwater is private property, subject to unrestricted use by the owner for irrigation of the land from which it is pumped.

It was a 3-2 decision, with the dissenters endorsing the theory of public ownership and prior appropriation as the only law that would fit the facts in an arid land such as is the case in Arizona.

In effect, the new law maintains it is illegal to pump water in one area and transport it over a great distance in order to take care of irrigation of other lands.

As such the decision raised many questions concerning Arizona's water use. If the strict letter of the Supreme Court's ruling were maintained, many irrigation districts now depending on overland transportation of water would be severely hit.

Utah legislature enacts new groundwater code

A new "model" groundwater code, establishing policies for appropriation of underground flow and setting up the state reclamation commissioner as administrator, has been passed by the Idaho legislature.

In a declaration of water policy, the new measure stated: "while the doctrine of first in time is first in right is recognized, unreasonable exercise of this right shall not block full economic development of underground water resources, but early appropriations of underground water shall be protected in the maintenance of reasonable, groundwater pumping levels as may be established by the state reclamation engineer."

The state reclamation engineer was given full authority to control use of groundwater "to protect the people of the state from depletion." He will be able to specify "critical groundwater areas," limiting the withdrawals therefrom, and grant underground water rights which are based on beneficial use.

The new law sets up the method for acquiring underground water rights "to the extent such water is available." The reclamation engineer is empowered to require all flowing wells to be capped or equipped with valves so flow can be completely stopped, and to control all water rights acquired under the new act.

Procedure is also set forth by which persons who believe their groundwater right is being adversely affected by another's use under a later priority may take remedial action.

Decision on Roanoke Rapids project boosts private hydroelectric plans

Construction of the $27-million Roanoke Rapids (N. C.) hydroelectric project, tied up in the courts for more than two years, will be resumed in the next few weeks by Virginia Electric & Power Co.

The Supreme Court last week cast aside the vigorous objections of the Interior Department and reaffirmed the Federal Power Commission license granted VEPCO in early 1951. Interior had contended that the site had been reserved for federal development, and the privately owned electric company had no legal right to build the 90,000 kw project.

Only preliminary work such as reservoir clearing and access roads had been done before the project was suspended pending outcome of litigation.

• **Affects many projects**—At least 17 other potential hydroelectric sites in the Roanoke and Savannah River Basins are in the same legal posture as Roanoke Rapids. Presumably the high court's action now opens these for licensing to private enterprise unless Congress subsequently withdraws them for federal development.

VEPCO already has an application pending for the development of one of these—the Gaston site some 35 mi downstream from the government-built Kerr Dam and reservoir. This application proposes construction of a dam and reservoir at a cost of $27.5 million with an initial installed capacity of nearly 90,000 kw and provision for the addition of still another 30,000 kw unit. This application was filed soon after FPC had granted the disputed Roanoke Rapids license.

Legal observers also believe that the Roanoke Rapids decision may help to reaffirm the license granted Pacific Gas & Electric Co. for a $73-million hydroelectric development on the Kings River in California. Interior is now contesting that license in a federal district court in the state of California.

• **Jobs of $127 million involved**—Assuming that the Roanoke Rapids action does have these broad implications, its immediate effect is to clear the way for projects costing an estimated $127 million. How many other projects might be indirectly affected, attorneys which fought the case for Interior and FPC aren't prepared to say. But they do generally agree that the proposed Gaston and Kings River projects, the 16 other sites in the Roanoke River and Savannah River Basins are in the same boat with Roanoke Rapids.

This would mean that electric companies can now proceed with construction, once they have an FPC license in hand. If the decision had gone the other way, it would have meant the construction would have taken years in the light of economy moves now in progress by both Congress and the new Republican Administration.

Plan jurisdictional board changes to restore unity to unions, management

Building Trades Department officials will not be allowed to serve on increased-membership board

With some changes in structure, on April 1 the National Joint Board for the Settlement of Jurisdictional Disputes in the construction industry will be extended for a sixth year. The changes are aimed at restoring unity among the 19 AFL building trades unions and 8 participating specialty contractor associations which formed the joint board in 1948.

Most significant change will be the absence from the joint board of President Richard J. Gray, of the AFL Building Trades Department, one of the chief architects of the jurisdictional disputes plan that has won wide acclaim and official recognition under Taft-Hartley from the National Labor Relations Board.

UNSEATED by change in rules of jurisdictional board will be Richard J. Gray, president of AFL Building Trades Dept.

• **Changes**—The new rules, still subject to final approval, will provide that no officer of the Building Trades Department may serve on the joint board. Gray has been a member and treasurer of the board, composed of four AFL and four contractor representatives and the impartial chairman, John T. Dunlop. Objective is to keep Building Trades Department officials out of the crossfire of jurisdictional fights.

The department was set up in 1907 to keep the building trades unions pulling together. Gray's service on the joint board created some frictions.

As a result of these internal difficulties, the electricians had withdrawn from the joint board plan, and plumbers and lathers had given notice of pulling out on the anniversary date, March 31. Similar action was taken or considered by three subcontractor associations—master plumbers, electrical and heating, piping and air conditioning contractors.

Another change will be enlargement of the joint board by the addition of four alternates for each side. This will give more unions a chance to participate in board actions and minimize dissatisfaction that has grown over some of the decisions. One major accusation has been that decisions favored general contractors and those unions employed by general contractors to the detriment of specialty contractors and their unions.

While the contractors likely will use alternates only to fill in for absentees, the AFL representatives probably will draw from either the regular or alternate group, depending on the situation.

Sometimes more than four AFL members may sit on a case, but only four will vote.

• **Approval**—The changes were recommended by the AFL's Bates Committee and approved by the Building Trades Executive Council at Miami Beach in January. At that time the AGC promised to go along, too.

The seven participating specialty contractors accepted the revision at a meeting in Washington, D. C., on March 13 and suggested some additional changes of a minor nature. One suggestion was to enlarge the joint board to 12, instead of 8, for each side (including alternates).

There will be further negotiations on these points and final approval also has to be voted by the 19 individual building trades unions. It is expected that agreement will be reached on the rules changes, and that all of the unions and contractor associations will concur.

State labor commissioner

Edward P. Park, business agent of the Operating Engineers Local Union No. 3 of Sacramento, Calif., has been appointed by Gov. Earl Warren as state labor commissioner. Park succeeds Lloyd A. Mashburn of Los Angeles, who was appointed Undersecretary of Labor in the Republican National Administration. For the last four years Park has been vice-president of the California Building and Construction Trades Council, AFL.

Strike roundup

Aluminum plant strike continues—Ohio strike—three others end

About 600 construction workers employed at the Gum Springs site (near Arkadelphia, Ark.) for Reynolds Metals Co.'s $33-million aluminum plant have been idled since March 9 by a strike of ironworkers. The workers still were off the job last week.

The labor difficulties began March 6, when 125 carpenters reported for work and were told by representatives of Aluminum Constructors, general contractor for the project, that there was no work for carpenters that day.

W. O. Welch, business agent for the carpenters' union, said that the company refused to pay for the customary two hours of show-up time.

Ironworkers also became displeased over the alleged failure to pay show-up time, and set up picket lines.

• **Ohio Edison strike**—Operating engineers employed at the Ohio Edison Co. generating plant project near Niles, Ohio, struck last week. The 50 strikers established a picket line and succeeded in closing down the project.

The union charged Babcock & Wilcox Co., which is installing boilers at the plant, with breaking agreements.

• **Settled strikes**—Sheetmetal workers were back on the job at the Indiana Ordnance Works, Charlestown, following reinstatement of a discharged shop steward . . . After winning a wage hike varying from 5 to 15 cents, construction workers ended a 10-day strike at South Boulder Canyon Dam in Colorado . . . The 8-day-old strike of some 2,500 AFL construction workers at the Chemstrand Nylon plant at Pensacola, Fla., was settled last week and work resumed.

High court upholds "right-to-work" law

Virginia court's injunction and picketing ban upheld by Supreme Court in test case based on 14th Amendment

The Supreme Court has upheld a state ban on peaceful picketing if it conflicts with a state's "right-to-work" law.

The decision last week upheld a permanent injunction and fine handed down by the Virginia courts against a group of AFL construction unions for picketing a school being built in Richmond. The decision, although not entirely clear, also appears to cover similar anti-closed-shop laws in about 16 other states. One thing it certainly does is to flash a green light on "right-to-work" legislation proposed in several more states.

• **Go ahead**—The new high court decision lends support to a bill in Congress to give states more "say" in labor legislation. Sponsored by Rep. Wingate H. Lucas (D.-Texas) the bill (HR 3055) would wipe out state and federal court decisions holding that the Taft-Hartley law pre-empted the field of labor legislation from the states. This was the basis of Supreme Court decisions invalidating a Wisconsin law providing for arbitration of public utility disputes and a Michigan law requiring strike votes.

• **Virginia**—Under Virginia's "right-to-work" law, you can't be denied a job "on account of membership or non-membership in any labor union."

The Virginia courts granted an injunction to Graham Bros., contractors on the school job, when union picket lines were set up protesting the use of non-union labor. There was no violence. One or two pickets carried signs reading, "This is not a union job, Richmond Trades Council."

But the state courts ruled that kind of picketing was designed to force the contractor to violate the state "right-to-work" law by causing the firing of non-union labor and the breaking of contracts with non-union subcontractors.

The unions involved—laborers, cement finishers, painters and operating engineers—argued that the picketing was intended only to inform members that the school project was not all-union. They appealed to the Supreme Court, claiming that the injunction violated rights of free speech protected by the 14th Amendment.

Justice Harold Burton, speaking for a 7-2 majority, ruled the state courts were justified in their findings and that enjoining such picketing did not violate the free speech guarantees of the federal Constitution.

Burton pointed out that Virginia does not prohibit peaceful picketing "unless for an unlawful purpose." Burton referred to another Virginia supreme court ruling refusing an injunction against picketing by a painters' local because there was no intent to cause a violation of the law.

Burton said the Richmond picketing was conducted in such a way that, "coupled with established union policies and traditions, it caused the union men to stop work and thus slow the project to a general standstill." Unless stopped by an injunction, such "practical means of putting pressure on the general contractor" ultimately would have forced a violation of the "right-to-work" law, he added.

Jurisdictional dispute ends at Old Hickory Dam

After a week-long jurisdictional stoppage, 550 striking workers at the Corps of Engineers' $52-million Old Hickory Dam near Nashville, Tenn., went back to work.

Col. G. M. Dorland, Nashville district engineer, expressed satisfaction that the strike was settled.

"We all deplore jurisdictional strikes," he said. "Everybody loses when one occurs. The job is set back. The contractor loses time. The worker loses his pay." ($52,000 was the estimated payroll loss.)

"The AFL Building Trades Department maintains a mediation service for ironing out such disputes, but in this case nobody took advantage of it. I hope they will next time," he added.

Ironworkers who have 50 workers on the job and carpenters who have 150 were opponents in the dispute. They forced almost 350 others off the job.

The disputed work assignments were:

• Whether carpenters or ironworkers had a right to insert steel bolts in steel water gates.

• Which union had the right to unload steel pilings for coffer-dams.

The tentative settlement awarded jurisdiction over both jobs to the ironworkers, A. E. Yow, ironworkers' business agent, said. Both assignments traditionally have belonged to the ironworkers, he said.

C. E. York, carpenters' business agent, said he did not care to comment. It was known, however, that his union appealed to the AFL's mediation service in Washington, for a final decision.

Operating engineers strike for higher wage scale

To emphasize their demands for a 15-cent hourly wage increase and added health and welfare benefits, Seattle and Tacoma, Wash., locals of the operating engineers international union, AFL, have initiated a strike against contractors belonging to three chapters of the Associated General Contractors of America in western Washington State.

The contractors have offered health and welfare benefits amounting to seven cents an hour, as opposed to the benefits of 10 cents an hour desired by the unions, but contend that the cost of living index does not warrant a wage increase at this time.

The strike initially affected four heavy construction contracts held by two firms. Jack McDonald, business representative of the Seattle local, said the union will not strike against defense projects unless "that becomes necessary to win their demands."

Operating engineers fined

Despite the partial purging of itself of contempt charges, the AFL International Union of Operating Engineers was fined $2,500 in a Kentucky court last week.

The fine grew out of the bitter legal fight over the right of a group of engineers, who were seeking autonomy from IUOE, to subpoena records from the Evansville Local 181 (ENR Dec. 18, 1952, p. 32).

Local 181, whose members operate equipment in the Paducah area, was found guilty of contempt last December. Attorneys for the rebel operators (Operating Engineers of Kentucky for Local Autonomy) had sought to examine the records in connection with a $2.5-million lawsuit against the IUOE.

When the IUOE failed to produce the records the court held the AFL union in contempt.

Two weeks ago the IUOE's international representative, Arthur Watkins, brought in the records and was considered to have purged himself partially of the contempt charges.

Carpenters strike in tiff with sheet metal union

A jurisdictional dispute last week hit construction of a $3-million wing of South Side Hospital, Youngstown, Ohio, as AFL carpenters walked off the job in a squabble with sheet metal workers.

The carpenters complained that the sheet metal workers have been installing desks, counters, instrument racks and other metal equipment. The carpenters won't go back until sheet metal workers have been taken off these jobs.

Joseph Bucheit & Son Construction Co. is general contractor for the job scheduled for full completion in May. Two floors of the wing were slated for April opening.

The Builders' Assn. of the Mahoning Valley asked the AFL Joint Board for a ruling on the dispute in February. M. A. Hutcheson, carpenters international president, was asked to investigate and settle the dispute by John T. Dunlop, head of the Joint Board.

Hutcheson reportedly informed the carpenters local in Youngstown that: "It is very evident that the contractor is giving you the runaround." He called for a report on conditions.

The contractors claim that they have complied strictly with union procedure in trying to resolve the differences.

NLRB to hear dispute concerning atomic sub

March 16, was the date set for a delayed hearing by the National Labor Relations Board of the dispute between the Building Trades Council of Schenectady, N. Y., and the Electric Boat Co., division of the General Dynamics Corp., builders of the atomic-powered submarine.

The dispute started when the Schenectady BTC charged that the Electric Boat Company had brought to the submarine project a full complement of craftsmen from New London, Conn.

The BTC then put a picket on the project; withdrawing the picket after three days on promise of an early hearing of their grievance.

The boat company filed charges with the NLRB and got a court injunction forbidding interference with the top priority project.

• **Company and union stands**—Beside the basic grievance expressed by the BTC—the importation of mechanics—the union also charged that the boat company was paying less than the prevailing wage scale of the area.

Company spokesmen, in rebuttal, declared that because of the exceptionally tight work tolerances that exist in submarine construction a period of four to six months' special training was required to develop a mechanic qualified to perform the work required.

The spokesmen also stressed that job costs were secondary to the time element.

The recess was called at a preliminary hearing before the NLRB and after a conference between the Metal Trades Council of New London, which has a working agreement with the company, and the BTC.

West Virginia turnpike stopped by labor trouble

Labor trouble, involving threats against construction workers last week halted work on a three-mile section of the West Virginia turnpike.

Nello Teer, Jr., contractor from Goldsboro, N. C., who holds a $4-million contract for this phase of the construction of the tollway, told the Turnpike Commission that threats of violence have stopped work .

He said that his men walked off the job after a gang of 125 to 150 men harrassed the workmen, by threatening them with rocks and climbing on power equipment to turn off ignition switches.

The interferers represented themselves to the turnpike workmen as members of, and sympathizers with the AFL union of operators, teamsters and laborers, Teer and his counsel, Robert H. C. Kay, told the commission.

• **Measures taken**—At the request of the construction company the Turnpike Commission took two actions which would permit construction to continue.

• It deleted the "escape clause" of the Teer contract which would allow the commission—at its discretion—to take over the job after any seven-day lapse of work.

• Authorized the placing of "no trespassing" signs along the right of way.

The Teer company asked the county authorities for protection against violence and threats of violence. This protection was promised to them.

Wage rate set

Agreement by Pennsylvania to pay prevailing wage rates at state hospital construction projects has ended a long-standing dispute in the Pittsburgh district.

The controversy had halted construction work on about $50-million worth of state projects at the Mayview, Woodville and Dixmont Hospitals, all in Pittsburgh's Allegheny County.

Secretary Anthony J. Furlan of the AFL Building Trades Council said the state told him it will pay the prevailing union rates to maintenance workers at the three hospitals.

About 100 building trades construction workers struck a week ago to protest the state's refusal to pay the going rates to electricians and plasterers at the hospitals.

Supreme Court action sparks California move

A move to enact a right-to-work bill in California gained strength in the legislature after the United States Supreme Court upheld the constitutionality of a Virginia Law (see p 30).

Assemblymen Harold K. Levering of Los Angeles, Republican Majority Leader in the lower house of the California Legislature, cited the current strike of employes of the Southern California Edison Co. as "an example of how our people are being denied the right to work."

Levering has introduced a bill which provides every person has the right to refuse to become or remain a member of a labor organization and makes it unlawful to interfere with this right.

He said the bill differs only slightly from the wording of the Virginia law but he will amend it to conform with the Virginia statute so that there will be no question of its legality.

In referring to the strike of Southern California Edison workers, Levering declared:

"There we have a strike, not against private enterprise, but against the public itself. Actually, what the unions are doing in the Edison strike is picketing 3,000,000 people whose very lives may be affected by the possible denial or curtailment of essential electric power.

"What the union bosses are doing there, and what they have been doing throughout the United States for 20 years, is seeking to impose upon the people that most evil of weapons, the closed shop," he declared.

Other legislators sharing Levering's view promised a strong fight for the bill despite the fact that Gov. Earl Warren has advocated that the legislature do nothing to stir up animosity between labor and management.

ROCK FLIES in the East Delaware Tunnel. Big muckers like this one have chewed their way through 25 miles of Catskill rock in little more than three years. (ENR photos)

East Delaware Tunnel: Gallery of up-to-date tunneling techniques

THE DATE was Jan. 31, 1950. Tom Walsh, Jr., and his gang were working their way through dinner at a famous fishing lodge in Roscoe, N. Y., and they were in a good mood for a job conference. Already, though driving had barely started, they knew they had one honey of a tunnel on their hands.

This month, little more than three years after that conference, Walsh Const. Co. and B. Perini Sons are holing through 25-mile East Delaware Tunnel—right on schedule.

Not all the original gang are there. Project manager John Macdonald and Al Allio, the project engineer, are in Europe on a big management contract for NATO interests. Jack Murphy moved two years ago to Walsh's joint venture at U.S. Steel's Fairless Works. Clancy O'Dell is with Peter Kiewit and Red Gatrell is in the rock drill business. But others, like Leo Pfleger, Charlie Kelley, Gene Tufts and Clyde Turner, are still on the job.

Good tunneling conditions helped these men turn in a good record, to be sure, but a few innovations had a part in it, too. Perhaps first on the list was "roof-bolting" in place of arch ribs for ground support. Worthy of mention, also, are hydraulic-boom drill carriages and trolley locomotives for haulage.

Meanwhile, concreting has been under way for almost a year, and now becomes the major activity. With the aid of at least one important innovation, a bridge for continuous placement of the invert, Walsh crews should be off the job well before the final deadline—November, 1954.

• **The Delaware project**—Before bringing tunneling methods up to date with details on East Delaware Tunnel innovations, it is a good idea to tell about the tunnel itself and the Delaware Water Supply.

The tunnel is a 25-mile link in one of the world's most ambitious water-supply projects. (Finished size will be mostly 11 ft 4 in., circular.) Also in the overall project are the 80-mile Delaware Aqueduct, running southeastward to New York City from Rondout Reservoir, which is in the Hudson River watershed. This reservoir is impounded by Merriman Dam, one of three in the system. The other two dams are on Neversink River and on the East Branch of the Delaware River, both in the Delaware River watershed. Six-mile Neversink Tunnel takes Neversink water under the di-

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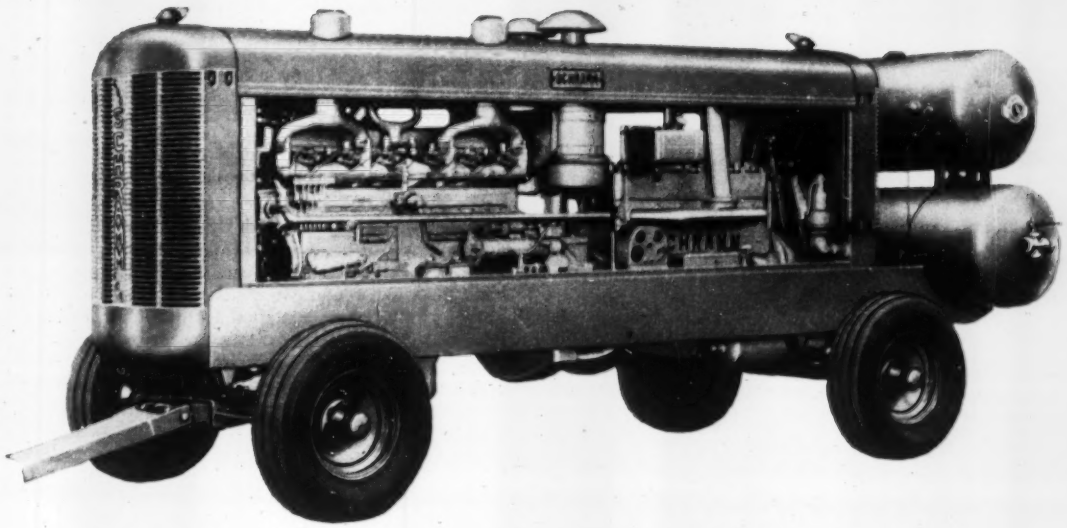

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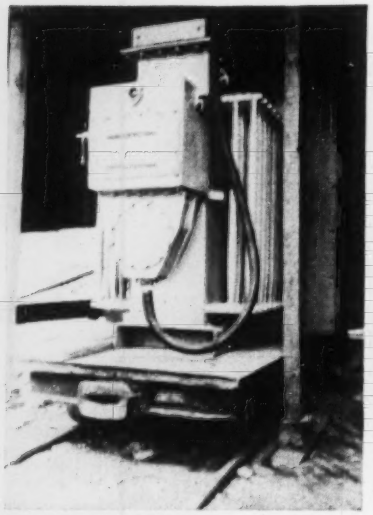


COMPACT POWER for tunnel haulage comes for first time from rail-mounted rectifiers.

SCALERS dislodge thinly laminated loose rock immediately after blast, preparing tunnel roof for bolting.

STOPER drives roof bolt into drill hole. Mine tie, part of the ground-support system, acts as templet.

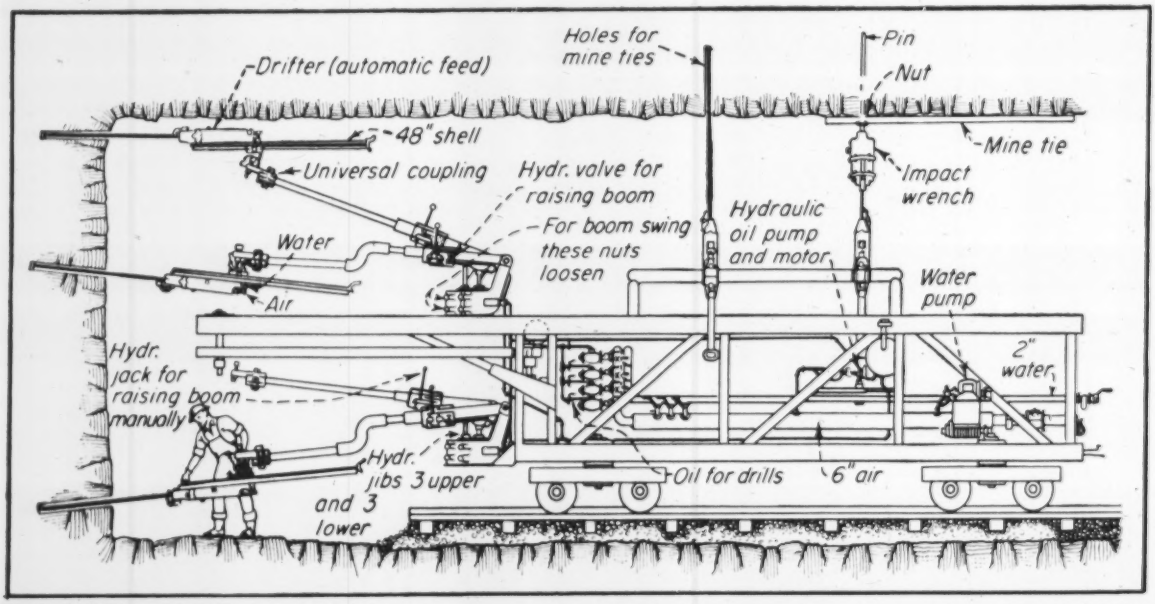
vide to Rondout Reservoir

East Delaware Tunnel also will feed Rondout, taking its water from the East Branch at Pepacton, N. Y. (An article on the dams' construction, ENR Jan. 6, 1949, p. 60, lists fourteen earlier articles on the Delaware Water Supply. Since then the East Branch Dam's diversion tunnel and Neversink Tunnel have been described in ENR Jan. 20, 1949, p. 78, and May 11, 1950, p. 35.)

Beginning at the Pepacton inlet, East Delaware Tunnel has been worked in six headings. The other five are: Two headings from Shaft 1, at Lewbeach, N. Y. (605 ft); two headings from Shaft 2, at Willowemoc, N. Y. (965 ft); and the outlet heading, on Rondout Reservoir near Grahamsville, N. Y.

• **Roof bolting**—Probably the biggest steel-saver on the job has been roof-bolting. Where used, it has taken only 15% of the steel that would have been required for arch-rib ground support. About two-thirds of the tunnel is roof-bolted; a third is supported with ribs. Roof-bolting advantages have helped the contractor pull two 8-ft rounds per 8-hour shift quite consistently throughout the project. His daily per-heading average progress has been 45 ft. It would have taken about a half-hour extra per round to install arch-rib supports before proceeding with the drilling. Roof bolts were installed from the drill carriage as face drilling proceeded. Other savings were in haulage for the ribs, and extra concrete in the lining (½ yd per foot of tunnel). The only plus in cost was gunite, which was blown on the bolted arch to keep shale splinters from slaking off and endangering workmen.

Conditions are ideal for roof bolting. Rock is a horizontally laminated red shale and grey sandstone. The bolts, driven radially from tunnel axis,



HYDRAULIC JUMBO features motor or hand-pump operation of hydraulic jibs. Drifters on top deck place roof bolts. (Courtesy Delaware Water Supply News)

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Every pipeline job has its tough spots. Maybe it's a complicated valve setting, or a gallery where space is cramped. Perhaps there's a steep grade or subsurface structures to be circumvented. From penstocks to filter galleries, wherever pipe is joined, Dresser Couplings simplify installation—pay *double* dividends when the going gets tough.

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Construction time was cut from months to weeks by using Dresser Couplings on this 75″ penstock in British Columbia. Penstocks remain bottle-tight despite high pressures and severe weather conditions.

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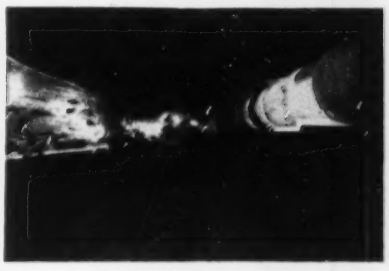
This valve setting and tie-in was greatly simplified and stress on the valve body reduced by Dresser Couplings on *both* sides of the valve. Workmen installed Dressers quickly, even in this cramped space.



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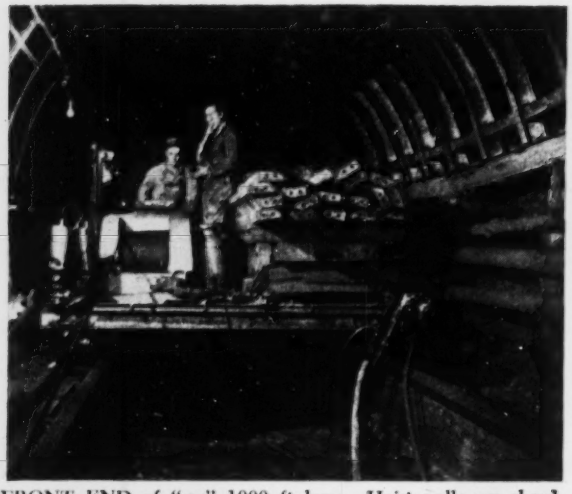
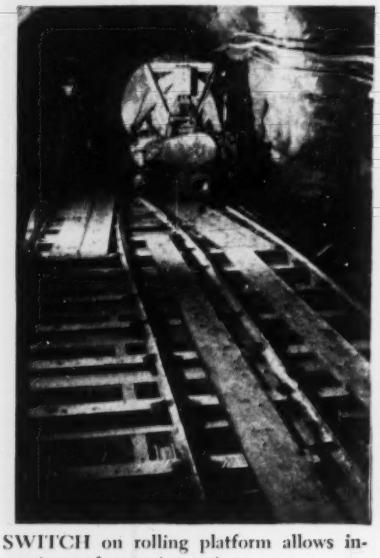


FRONT END of "car" 1000 ft long. Hoist pulls car ahead in short moves as it carries trainloads of invert concrete.

REAR END of concreting platform is truss that bridges space for slipping curb rails inward onto fresh ties on day-old invert.



SWITCH on rolling platform allows incoming and outgoing trains to pass.

AGITATOR CAR, electrically operated, places concrete through platform frame.

VIBRATORS assure placement before power screed establishes circular section.

pin the lamina together. The effect is the same as that of fastening several planks together to make a strong laminated beam.

Bolts are 6 ft long, made of 1-in. bar stock and threaded on one end. A steel wedge, inserted in a slot at the bolt's inner end, expands and anchors the bolt when it is driven against the back of a drill hole. Standard mine ties, containing two to four holes at 2 ft 4-in. spacing, act as washers and templets for groups of bolts. The ties are snugged up against the rock with nuts.

Use of the ties is the real innovation in tunneling. Roof bolting, with single plate washers, held up the roofs in two western tunnels that were under way during the first year of this job (ENR May 17, 1951, p. 30). The technique also has been used in mining for a few years.

Two methods were used for installing roof bolts. One involved drifters mounted on the drill carriage (see drawing). The other used a stoper. The former, having a 48-in. feed, required only two changes of steel to obtain a 5 ft 8-in. hole, but it was less flexible in its application, being fixed to a bar frame on the jumbo. The latter, a simple hydraulic-ram leg in line with the drill, required five changes, because of its short feed, but it could be abutted any place on the jumbo.

• **Hydraulic jumbo**—Power positioning of forward drifters on the drill carriage is not new, either. An earlier application, using air motors, was found in Neversink Tunnel. But the six East Delaware jumbos boom their drifters up and down with hydraulic power. The advantage here is that in case of power failure a hand hydraulic pump on each boom can be used to raise or lower the drifter. The main hydraulic pump and air motor, together with hydraulic fluid reservoir and feed system, are mounted in the body of the jumbo. A valve on each boom operates it. Boom-swing and drifter-pointing are manual. There are three drifters at the forward end of both the lower and upper deck, positioned as shown on the drawing.

• **Trolley haulage**—An undisputed "first" on this job, however, is the use of rectifiers to bring direct current into the tunnel, and thereby make trolley locomotives a reasonable choice for haulage.

High starting torque is needed for

locomotives. This means that if they are to be electric they must be direct-current. The only kind of current that can be brought to an isolated job economically is alternating current, so contractors usually get their direct current from batteries, which they slow-charge with motor-generator sets. In the case of shaft-access tunnels, handling batteries in and out of locomotives, and up and down shafts can be inconvenient.

An alternative would be to convert a.c. to d.c. with big motor-generators and use trolley locomotives, but the converter installation would be bulky and expensive, and d.c. line power losses in long headings would make trolley operation inefficient or impossible. For this reason few trolley-haulage installations are found in the annals of tunnel construction.

For the East Delaware Tunnel, however, General Electric Co. engineers came up with a new compact heavy-duty rectifier, which could be taken into the tunnel on two flat cars and tucked away on a siding in a niche blasted out of the tunnel's side.

In practice it was found that the rectifiers could be left above ground during tunnel driving, adequate power in the headings being obtained by stepping up the voltage at the rectifiers, above the ground.

• **Motive power**—The so-called trolley locomotives on the job actually are a combination trolley-battery units. With these locomotives, during tunnel driving, trolley wires did not have to be taken all the way to the face. Batteries can be charged while the trolley is in contact with its wire. Thus, hoisting batteries above ground for service is minimized.

As many as three rectifiers have been used at each shaft. One more is at each portal. The portal rectifiers and one at each shaft serve primarily for above-ground battery charging. The others serve trolley wires in the headings, feeding current through heavy conductors to taps on the trolleys at 1000-ft intervals. One rectifier can keep four locomotives operating, considering the likelihood that not all four will be in use at the same time. However, near the end of the driving long-line d.c. losses made power a bit weak for upgrade muck haulage. Maximum locomotive demand is 400 amps; rectifier output is something over 1000 amps, at 220 volts.

Locomotives at the upper portal are straight battery units, carrying 900-amp-hr batteries instead of the 450-amp-hr batteries that are used in trolley-combination units. At the outlet portal, combination units were used for muck haulage, although the trolley wire was taken only a mile underground. Object here was to provide dependable full power for an uphill run to a cramped muckbin.

• **Continuous invert concreting**—A "car" 1,000 ft long is the device that permits Walsh-Perini to lay down tunnel invert concrete continuously at 1000 ft a day. All but its hindmost set of wheels ride rails on the previously-concreted curb section. That last set rides newly-laid narrow gage rails on the tunnel-invert concrete, which is at least a day old when the long car's rear wheels reach it.

Trainloads of concrete ride into the tunnel on the narrow gage track, climb a ramp that slides along behind the long car, and proceed to a point near the car's front end, where they dump through the frame. Periodically the car is pulled a few feet forward by a tugger hoist mounted on the front end. The hoist line reeves out through a snatch block (anchored in rock well ahead of the car) and back to the car frame. Another hoist, similarly rigged, pulls a heavy invert screed that has wheels riding along on the curb section.

The object of the long car, or rolling platform, is to bridge the portion of new concrete that cannot yet support haulage track.

Most ingenious feature of the platform is a 45-ft truss bridge at its after end. This bridge enables workmen to lay rail continuously on the invert. The forward end posts of the bridge ride wheels on the curb concrete, the same as the rest of the platform does. (There are six wheels on each 25-ft-long panel of the platform.) The bridge's rear end posts ride the narrow-gage wheels mentioned above.

When the bridge's forward wheels clear a rail, men unsplice it and slide it sideways under the bridge and down onto fresh ties, which are shaped to fit the invert on their under side. There, they splice the rail to the narrow gage track and spike it to correct gage.

For continuous invert concreting to be effective it is necessary to have curb concrete in advance. This is not difficult, because most of it can be done from the muck track. Forms are standard 15-in. highway pavement headers, supported by kickers to the rails.

The invert takes a half yard of pay concrete per running foot, so the concrete plant must turn out more than 500 cu yd a day. It is carried into the tunnel in 4-yd agitator cars, which are operated off the tunnel's a.c. power circuit when they are in position to dump.

Concrete plants, of which there are three, have two 56S-mixers, so they can turn out more than 1400 cu yd in a day. This rate, which is higher than that required for invert work, is geared to the desired rate of arch concreting. This later work will be done with conventional telescoping steel forms.

In sections roughly corresponding to the drive headings, the concreting procedure is to pave invert away from the portal or shaft, and place the arch back out to the point of concrete entry. (Haulage equipment cannot operate through the telescoping arch forms.)

East Delaware Tunnel is being built for the New York Board of Water Supply. N. LeRoy Hammond is deputy chief engineer, in charge of the Delaware water supply. B. J. Sullivan is division engineer and Courtland Thomas is senior engineer, in charge of East Delaware Tunnel. His assistant is Ben Marcus. T. J. Walsh, Jr., is president of Walsh Const. Co. Project manager for Walsh-Perini is Charles Kelley. Clyde Turner is general superintendent, Jack Fanning is master mechanic, and Jack Mordigal and Tom O'Leary are in charge of electrical installations. Local superintendents are Gene Tufts (inlet), Red Granger (Shaft 1), Bob Bills (Shaft 2), Leo Pfleger (outlet).

Riprap substitutes tested on inexpensive machine

Bureau of Reclamation researchers in Denver, Colo., have built a $500,-wave-producing apparatus for their continuing experiments on asphaltic concrete and soil-cement as substitutes for riprap, so costly to transport to Great Plains dams. Reporting on the laboratory device in THE RECLAMATION ERA for February, L. M. Ellsperman compares the converted "washing machine" with other machines available for the purpose at costs up to $400,000.

USBR engineers test durability of riprap substitutes in a watertight tank 4 ft square, 3½ ft high. Just above water 20 in. deep, a horizontal shaft is turned 40 rpm by a small electric motor. On spokes at either end of the shaft are welded three equally spaced steel rods, parallel to the shaft. And on each parallel rod are six brass holders of the particular paving material to be tested. These holders can be adjusted so that the material surface will hit the water at any desired angle, to simulate conditions of water hitting the dam surface in actual conditions of wind-wave action.

A counter on the revolving shaft records the number of times water hits paving material. Samples have been subjected to as many as 26,-000,000 blows.

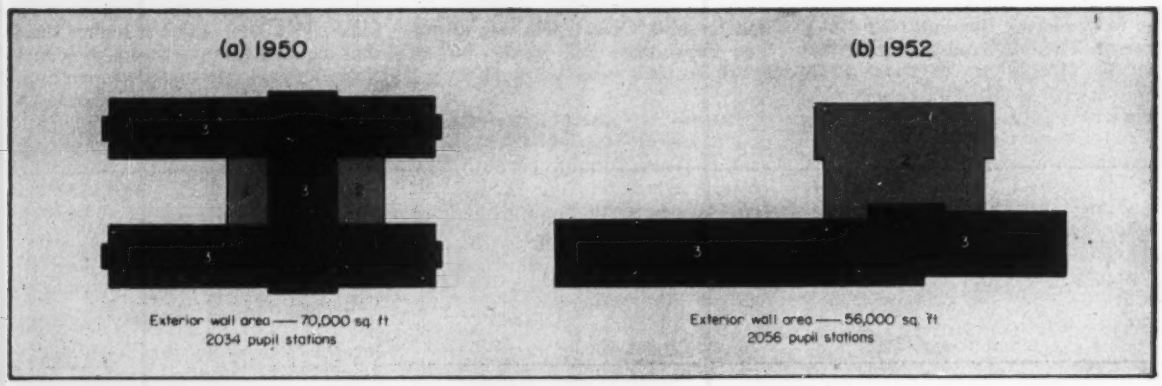


FIG. 1. BUILDING SHAPES for New York City schools were changed to save money, by reducing exterior wall area.

Economy move pays off on school costs

REORGANIZATION of the design and construction arm of the New York City Board of Education has proved well worth while. Though construction costs, in general, rose last year, the cost of building new schools in the city dropped.

Credit for this is due principally to John P. Riley, coordinator of construction for the board, Michael Radoslovich, chief architect, and William Correale, chief engineer. In the short period of seven months, they reorganized the Bureau of Construction to improve its efficiency and instigated improvements in school design that expedited construction and lowered costs.

Mr. Riley, formerly director of development of the New York City Housing Authority, was loaned to the Board of Education two years ago for that purpose. At that time, the school program was in the hands of a Bureau of Construction, the superintendent of which was an architect. An assistant superintendent headed a design division and a specification division. Design was the responsibility of separate offices, each handling its own specialty. No one was assigned to schedule the work for expeditious and efficient integration and to keep it on schedule. Construction and inspection were handled as stepchildren. Administrative procedures were archaic (ENR Oct. 4, 1951, p29).

• Steps taken to cut costs—On Riley's recommendation, the present organization of the Bureau of Construction, with clear lines of responsibility, was approved last May. Separate divisions were established for design and construction. The design division was reorganized to improve its efficiency, and complete control of construction activities, including inspection, was centered in the new construction division (ENR June 26, 1952, p. 62).

In preparation for the 1952 design program, the new heads of the bureau solicited advice from engineers, architects and contractors on how to cut construction costs. Specific design recommendations based on this advice were then issued. These included such items as reducing story heights, simplifying parapets, economizing on wall finishes, omitting steel-plate flashing at wall beams, employment of common breeching and chimney, placing of oil tanks in basements, use of standard fans, reducing pipe covering and simplification of pipe-hanger details (ENR Sept. 18, 1952, p.37). Also existing standardized details were redesigned for better economy, superfluous details were eliminated and where possible, new design standards were established.

Under the new program, schools were designed both by the bureau and by private architects. More work was thus turned out without increasing the bureau's staff.

• Lower bids received—By the beginning of this year, the results of the economy program were evident. Schools were better planned, more efficient and better equipped than in previous years. But they cost less!

Capital budget allocations for 1952 for 21 projects totaled $47,600,000. Actual bids came to $42,400,000, indicating a saving of $5,200,000. This was more than sufficient to pay the fees for supplementary design contracts; the net balance was about $3,700,000. That this was not just a "paper" saving is evident upon examination of the accompanying table.

Despite a general 2%-rise in New York City building costs in 1952, as measured by the ENR Building Cost Index, school costs were less last year than in 1951. Junior high schools averaged $1,340 per pupil ($1.22 per cu ft) in 1952, a saving of $170 per pupil ($0.14 per cu ft) compared with the previous year. Elementary schools averaged $1,471 per pupil ($1.32 per

Actual Savings on School Construction Costs in 1952

	Cost—1951 Prices	Cost—1952 prices	Saving
Elementary Schools (1 and 2-Story) 1,626 pupil stations	@$1,858 = $3,021,108	@$1,658 = $2,695,908	$325,200
Elementary Schools (3-Story) 6,602 pupil stations	@$1,552 = $10,246,304	@$1,468 = $9,691,736	$554,568
Junior High Schools 12,694 pupil stations	@$1,513 = $19,209,022	@$1,340 = $17,009,960	$2,199,062
Improvement (such as aluminum windows, fluorescent lights, etc., not used in 1951 schools but included in 1952 costs) about			$200,000
			$3,278,830
Allowance for 2% increase in construction costs in New York City in 1952			$650,000
Total			$3,928,830

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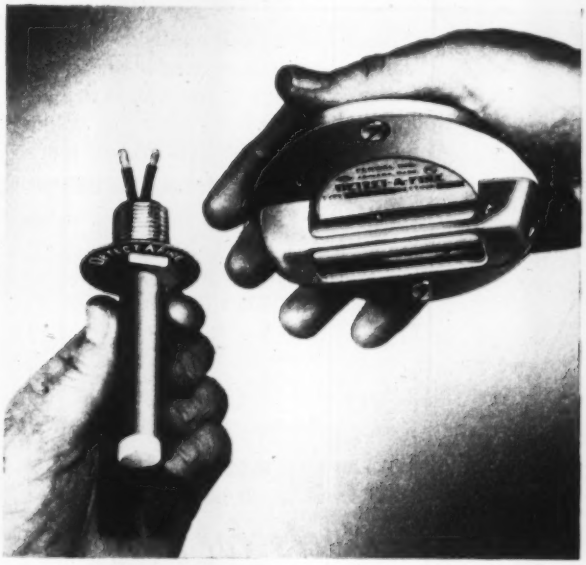

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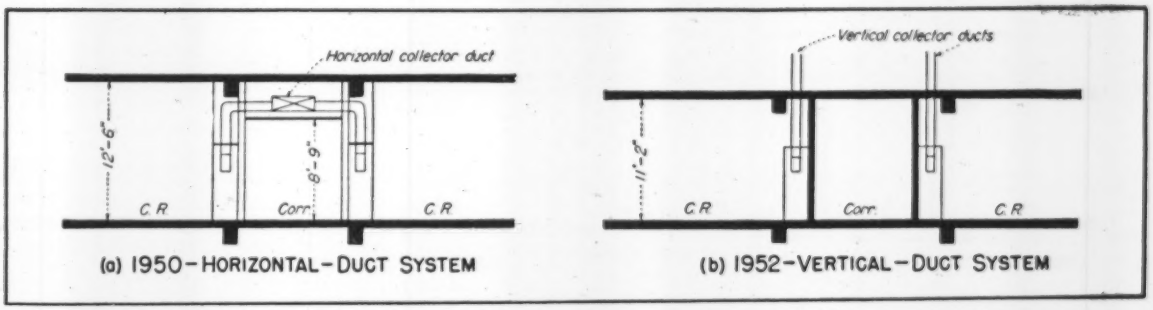


FIG. 2–DUCT SYSTEMS were changed for economy from horizontal exhaust to vertical-collector to cut story heights.

cu ft), a decrease of $60 per pupil ($0.01 per cu ft). For the purpose of this comparison, the cost of abnormal foundation conditions, playgrounds and other work that might distort the figures was not included. Costs of schools designed by private firms averaged slightly less than schools designed by the bureau.

Heating and ventilating costs ranged last year from $0.14 to $0.19 per cu ft, with an average of $0.15. Plumbing and drainage varied from $0.05 to $0.09 per cu ft, with an average of $0.07. And electric work cost between $0.05 and $0.12 per cu ft, with an average of $0.09.

The schools are mostly three stories high and have a gymnasium and an auditorium. They have concrete frames and brick exterior walls. The elementary schools were designed for 1,000 to 1,310 pupil stations, and the junior high schools for 1,600 to 2,056 pupil stations.

• **Better planning a big factor**–Asked to account for the reduction in cost, Mr. Riley replied: "A cumulative saving is traceable to tangible and intangible factors. The tangibles are the individual improvements in design details resulting from the design changes we recommended. The intangibles stem from better basic planning."

This is borne out by a comparison of a school built in 1952 with one built in 1950 for about the same number of pupils. As shown in Fig. 1, the exterior wall area for the new school is 20% less than that for the older building. Some of the reduction is due to a decrease in story height from 13 ft 4 in. to 12 ft 2 in. But by far the greatest proportion of the reduction results from the change in shape, which substantially decreased the exterior-wall perimeter of the three-story section of the school.

• **Duct system redesigned**–The reduction in story height was also a 1952 innovation. Numerous attempts to bring this about had been blocked previously–not by limitations set by desirable classroom-ceiling heights–but by minimum ceiling height in corridors. This depended on space requirements for horizontal runs of collector air ducts along corridor ceilings, which drop to a common exhaust-fan chamber. The bottleneck finally was broken by removing the ducts from the corridor.

The change was made possible by a switch to a vertical collector-duct system (Fig. 2), with roof exhaust fans. In the school in which this was done, floor-to-floor heights were cut 18 in.

Another saving resulting from this change was elimination of furred corridor ceilings. In addition, since the ducts are placed above wardrobes in classrooms, these formerly unused furred-in spaces are put to good use.

A further reduction in the overall height of buildings was brought about by shortening parapets. But just as significant were the savings due to simplification of parapets (Fig. 3), which was one of the design recommendations made last year.

While the savings effected are appreciable, Mr. Riley believes there still is room for further major economies. For example, certain of the educational standards, such as predetermined dimensions of classrooms and other spaces, are not conducive to economical design.

"I believe," he says, "that the design division should be given more freedom in recommendations for such standards. While I recognize that the purpose and method of use of a room are properly determinations of the educational staff, I believe that the designers should be permitted to present such sizes and shapes of classrooms as will permit proper educational use functionally and still produce the most economical use of space."

Mr. Riley returned to the New York City Housing Authority on March 1 as director of development.

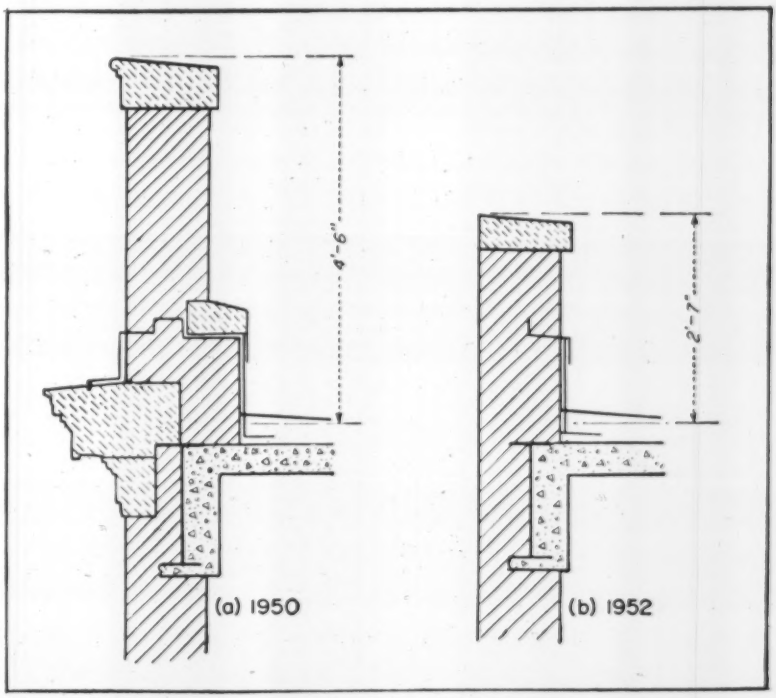
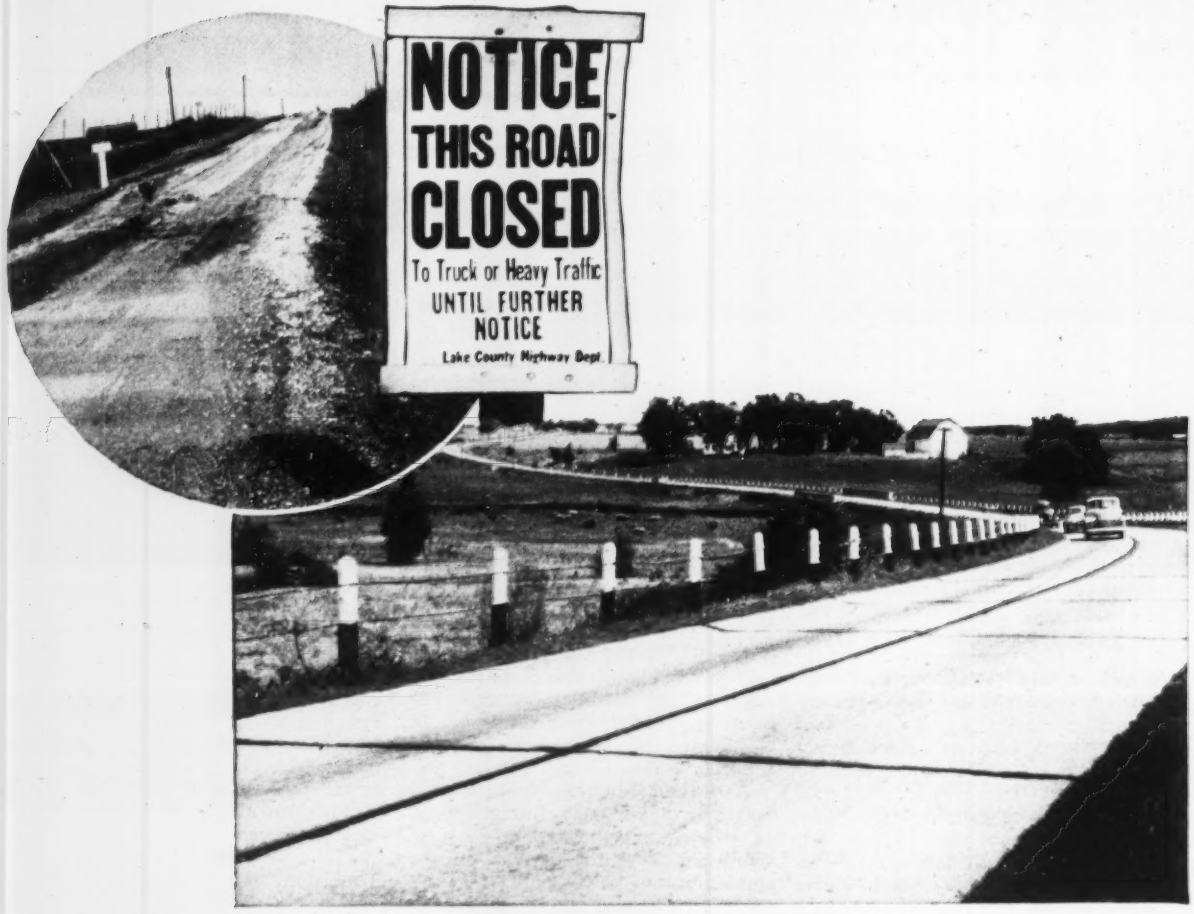


FIG. 3. PARAPETS were shortened and simplified to cut costs.



Spring Break-up No Threat to Concrete Pavement

Spring break-ups put many roads out of service for heavy traffic. Repeated freezing and thawing cycles so soften and weaken most subgrades that in northern states non-rigid pavement must be restricted against heavy loads to prevent its destruction.

In Minnesota, for example, spring break-up imposes load restrictions on about 8,000 miles—two-thirds of the state trunk system. Beginning in March some communities are entirely shut off from major truck transportation for 60 to 90 days.

Concrete pavement is not damaged by spring break-ups. Being rigid, it has load-carrying slab strength. Loads are spread over so large an area that the pavement can carry normal loads even on greatly softened subgrade. As a result the concrete roads carry nearly all the heavy traffic during this annual spring break-up period.

All-weather service is only one advantage of concrete pavement. It is safer, too. Wet or dry, its gritty surface has uniformly high skid resistance. It reflects more light, providing maximum visibility at night. Its moderate first cost, long life and low maintenance cost mean ***low-annual-cost*** service.

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CENSUS WORKER INTERVIEWS HOUSEWIFE in highway planning survey for the San Diego, Calif., area. Results of this and similar sessions with a selected sample of householders will provide more accurate planning data.

California highway planning survey aided by Census Bureau interviews

Here is a new wrinkle in home-interview traffic surveys. The California Division of Highways has contracted with the U. S. Bureau of the Census to handle several such surveys. Thus, supervision of the home interviews is in the hands of experts in that field. The Census Bureau has the added advantage of having lists of all the homes, and tabulating equipment with which to process the information collected by its interviewers.

From its records the Census Bureau makes up lists of households to be interviewed. Bureau samplers in Washington select a beginning point by random methods. Then the rest of the list is compiled by selecting households at regular intervals until the desired number has been obtained. For a survey now under way in San Diego, where the urban and suburban population totals about 500,000, this number was set at 10,000.

The home-interview method for making traffic studies has been in use for some years. It is believed to produce much better results than the older methods involving the use of electronic counters and post card questionnaires, especially for producing the type of information needed at San Diego. There the highway engineers want to determine not only the best routes for new freeways but also where to locate exits and entrances, where traffic controls should be installed on existing highways and what volume of traffic can be expected to develop on various sections of the highway system.

Census Bureau interviewers check on the number of persons who work outside the home, the kind of job held and the kind of business or industry in which the persons work; they determine how each person travels to work; the distance from the home to the place of work; the facts about each trip on a certain day, even short ones for shopping, visiting, or other purposes. These facts include—when and where the trip began and ended, the purpose, whether the trip was made by auto, truck, bus or taxi, did the route include a freeway, how many passengers and what kind of parking was used if the trip was made in an automobile?

A second section of the survey is handled by personnel of the division of highways. This involves roadblock checks to obtain data on persons who live outside the household area checked. All roads carrying 600 or more cars a day are checked in this manner at least twice for two separate eight-hour periods.

The entire survey is spread over a six-month period to avoid having the results thrown out of kilter by seasonal or holiday travel.

State and federal highway engineers will determine travel patterns for the area and travel habits for certain classes of people. For example, in San Diego the claim has been made that a large proportion of retired persons in the population travel highways more than other classes of residents. The survey has been set up to prove or disprove that theory. The information disclosed might be useful when correlated with that developed in other areas.

The highway engineers expect to receive at least a partial answer to the question of the attracting power of freeways. Freeways constructed recently in San Diego were planned to handle traffic loads for years ahead, but frequently already they are filled to capacity.

The Bureau of Public Roads, which is a joint sponsor of the survey, has expressed particular interest in this phase of the study.

The studies are useful also in providing data on by-pass requirements. A similar survey made in Sacramento, for example, showed that 9.5% of the motor traffic moving in and out of the Sacramento survey area desired a bypass.

Ground water supplies said unaffected by cooling water

Pumping air conditioning or refrigeration cooling water back into the underground water table neither pollutes the water nor appreciably raises its temperature, according to a Fresno, Calif., study.

California pollution experts had feared that such return of cooling water threatened the ground water supply, by affecting its bacteriological or mineral quality or by raising its temperature beyond 80 deg F, the maximum believed desirable for public water supply.

Joseph S. Gorlinski, executive officer of the Central Valley Regional Water Pollution Control Board, said that although the report is one of "negative results, it is just as important to know that there is no problem as it is to find there is one."

The recently completed survey, costing $2,000, was conducted by two state agencies, the Water Pollution Control Board and the Division of Water Resources.

Fresno was chosen for the study because an eight-year old city ordinance required the pumping back into the ground of water used for cooling in air conditioning and refrigeration installations.

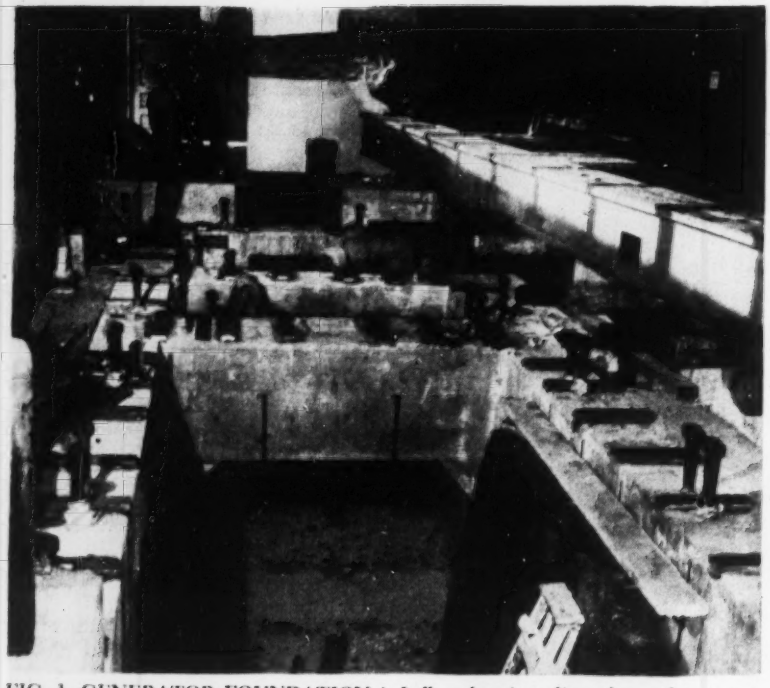


FIG. 1. GENERATOR FOUNDATION is hollow for air-cooling of complete assembly and is reinforced throughout, including the bottom slab. The steel beams on the right roll over to support the assembly on the 1¼-in. steel plates set in the top of the side walls and cross-beams.

Generator foundation for cosmotron meets unique requirements

John M. Ruddy
Chief engineer of Architectural Planning and Plant Maintenance Dept.
Brookhaven National Laboratory
Upton, N. Y.

A UNIQUE DYNAMIC FOUNDATION has been built at the Brookhaven National Laboratory, Long Island, N. Y., to meet the requirements of a generator supplying the main magnet power for a 3-billion electron volt cosmotron —highest energy particle accelerator known to be in operation. The reason: Unusual operation of the motor operator assembly.

The 12-phase ac generator, complete with ignition rectifiers, is connected through a 45-ton flywheel to a 1,750-hp induction motor. The foundation for this assembly has to resist—in addition to static and operation loading—a two-ton rocking motion 5,000 times per eight-hour day, and one or two short circuits daily, causing large tension and compression forces on the foundation. The design had to provide space for the passage of air for cooling, and the structure had to be independent of the building that housed it.

From experience, it was believed that a safety factor of two (that the foundation weight would be twice that of the motor-generator set) would suffice to counteract the unusual forces acting thereon and to relieve fatigue and reduce vibration. An increase in the depth and width of the center section of the foundation reduced further the mass requirements occasioned by the rocking under unbalanced loading.

• **Power plant mounting is model**—The best type of foundation was determined to be similar to those designed for power plant generators and blooming-mill motors. The nature of local site conditions dictated the use of a floating-mat type of structure on an allowable subsoil pressure of 8,000 lb per sq ft.

The total weights of the motor-generator assembly including a 2-in. steel top bedplate are indicated in Fig. 2. The whole assembly then rests on the 14-in. WF119-lb beams—seen in the upper right hand corner of Fig 1—which was welded to and bears on the 1¼-in. steel bed plates seen along the top of the side walls and beams of the concrete foundation itself in Fig. 1.

• **Load variations**—Normal operational loading occurs when the assembly runs through its complete cycle every five seconds. This involves a deceleration of the flywheel for the first second, an acceleration for the next second, and a reduced acceleration for the remaining three seconds.

During this cycle—from the steady state to deceleration and back through acceleration—the loading on the west side generator foot increases from 7,900 to 55,100 lb, and the east side loading increases from 2,700 to 49,900 lb (Fig. 3a). This gives the assembly the rocking motion described previously. In addition, similar variations in the motor-stator reactions were as much as 4,000 lb on each side. Special emphasis had to be given to the foundation design with respect to fatigue from this rocking motion.

The short circuit reactions are shown for both the motor and the generator in Fig. 3b. These short circuits occur in the ignitrons that change the generator's 12-phase ac to dc and may be expected once or twice daily, giving a violent turning lurch to the whole assembly.

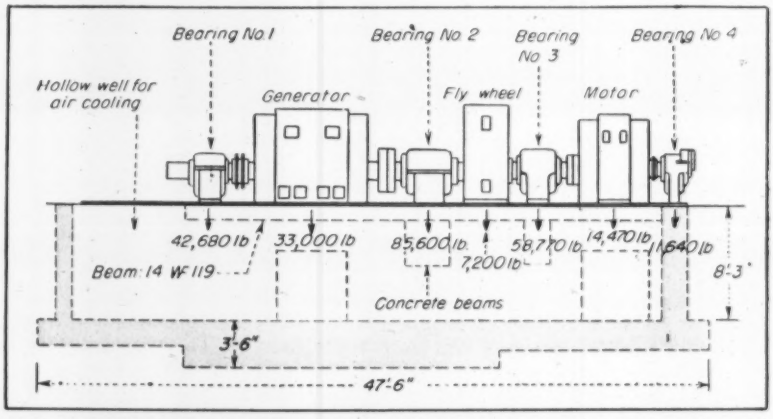
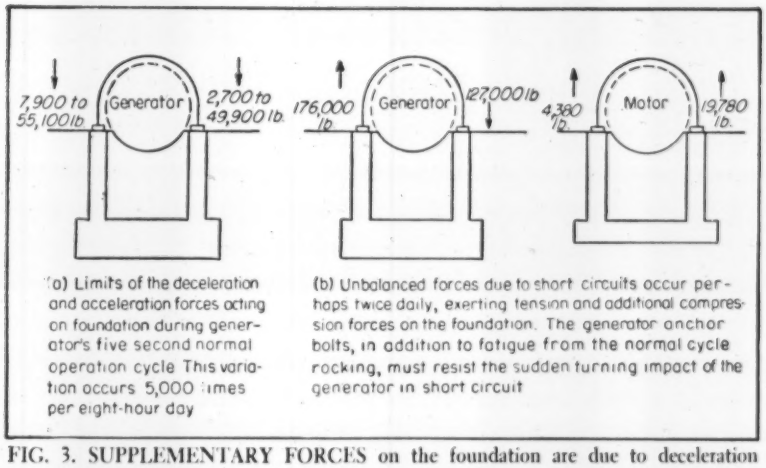


FIG. 2. FOUNDATION FOR MOTOR-GENERATOR assembly is a floating mat design on 8,000-lb per sq ft soil. Center section of bottom slab is wider and deeper than the ends to counteract generator's rocking forces.



(a) Limits of the deceleration and acceleration forces acting on foundation during generator's five second normal operation cycle This variation occurs 5,000 times per eight-hour day

(b) Unbalanced forces due to short circuits occur perhaps twice daily, exerting tension and additional compression forces on the foundation. The generator anchor bolts, in addition to fatigue from the normal cycle rocking, must resist the sudden turning impact of the generator in short circuit

FIG. 3. SUPPLEMENTARY FORCES on the foundation are due to deceleration and acceleration in the normal operating cycle of the generator, and the unbalanced forces due to short circuits occurring daily.

Westinghouse Electric Corp., manufacturer of the motor-generator set, believed the foundation would be satisfactory if the differential vertical motion throughout the set could be kept within a tolerance of 0.005 of an inch to prevent rotor deflection which could freeze or burn out the machine.

All these criteria were resolved into a monolithic reinforced concrete structure 45-ft long, 11-ft 5-in. wide, and 8-ft 3-in. high at the highest point, supported on its integral base 47-ft 6-in. long, 3-ft 6-in. thick at its thickest point under the generator, and 15-ft 39-in. at its widest point.

• **Heavy reinforcing**—Design studies showed that the structure had to be reinforced for stiffness in the generator area and under Bearing No. 2 (See Fig. 2). The steel areas required at these critical points were generally carried throughout the structure to develop a greater dynamic rigidity. The foundation wall steel was No. 6 bars, 12 in. c to c both ways with two No. 8 bars top and bottom in the end walls; and four No. 8 bars, top continuous and two No. 8 bars, bottom continuous in the side walls, with subfoundation steel of No. 6 bars, 12 in. c to c both ways, top and bottom. Supporting beams under Bearings 2, 3, and 4 contain No. 8 bars and No. 4 stirrups.

After 24 months of intermittent operation under these conditions no appreciable settlement or misalignment has occurred in the motor generator rotors, notwithstanding the combined loading of nearly one million pounds maximum loading on the soil under the motor generator set.

Built-in deflections cut frame cost

R. W. Waterhouse
Formerly Structural Engineer, Alaska District Corps of Engineers, Anchorage, Alaska

COST OF STRUCTURAL-STEEL FRAMING for a 120x220-ft warehouse at Ladd Field, Fairbanks, Alaska, was reduced by employing a variation of continuous-beam design. This innovation allowed the use of standard rolled sections weighing less than the sections determined by conventional design practice.

Continuous beams with three 40-ft spans support the roof of the one-story structure. They differ from conventional beams, however, in that the interior supports are lower than the end supports. This arrangement permits the beam to deflect under dead load, relieving the negative moments over the interior supports. The result is that maximum positive rather than negative moments fix the beam size.

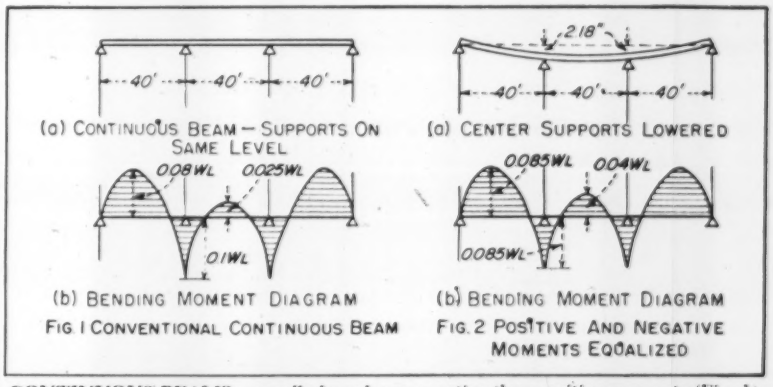
The beam size used was 18WF55 for a design load of 1,100 lb per ft. For conventional design, 18WF60 beams would have been required for negative moment, or 18WF50 for positive moment with flange plates at the supports to meet negative moment requirements.

• **Smaller beams required**—Continuous beams are used because the reduction in bending moment because of end restraint offers an economic advantage over simple beams. However, in the selection of rolled shapes for continuous-span framing, the section modulus, in most cases, is determined by the negative moments at the supports, which are much larger than the positive moments.

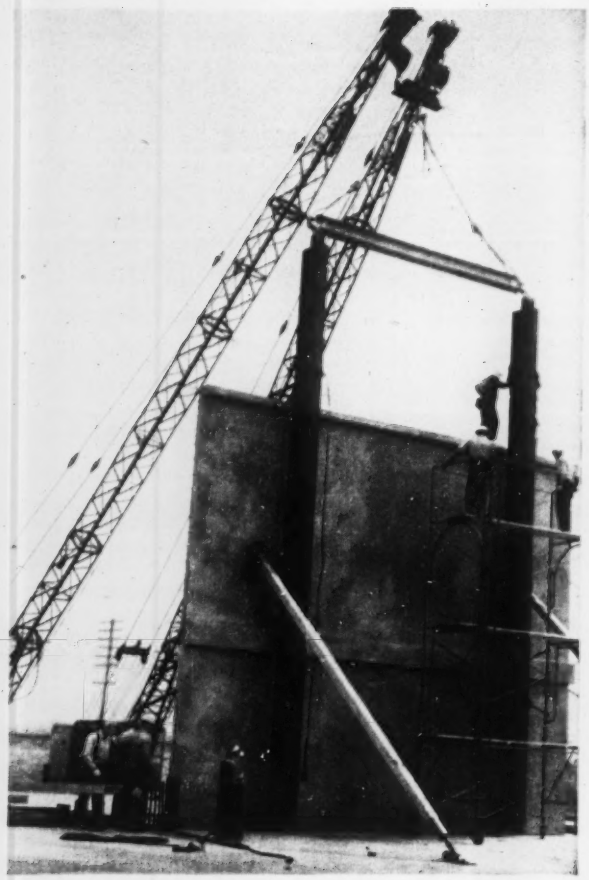
The technique used for the framing of the Ladd Field warehouse brings about a decrease in negative moments by permitting the beams to carry part of the dead load as simple beams spanning between the exterior building columns without interior supports. Continuity is utilized in supporting the live load and the remainder of the dead load.

The interior supports were lowered 2.5 in. below the level of the end supports. Theoretically, the weight of beam for three equal spans with uniform load may be reduced 15% when positive and negative moments are equal. Computations showed that a deflection of 2.18 in. would equalize the positive and negative moments for the particular loading on the warehouse beams, but a deflection of 2.5 in. was actually specified to meet roof drainage requirements. Therefore, the maximum positive moments were greater than the maximum negative moments.

The building was designed by the author while working for the Alaska District Engineer at Anchorage. The warehouse was built by J. H. Pomeroy and Co., San Francisco.



CONTINUOUS BEAMS generally have larger negative than positive moments (Fig. 1). In a warehouse at Ladd Field, Alaska, however, the negative moments were reduced by lowering the interior supports to slightly more than the optimum position indicated in the bending moment diagram in Fig. 2.



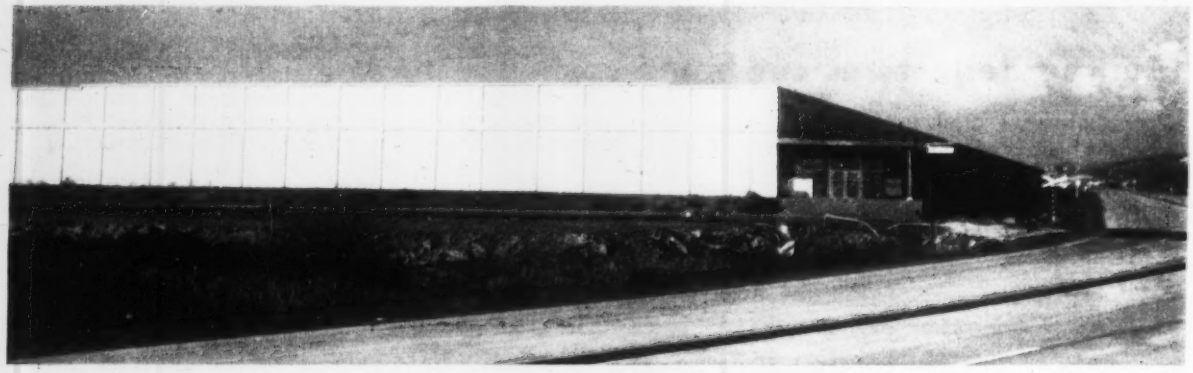
Panels are 6" thick with 12" integral beams. By seizing strongbacks attached to panel, 2 cranes lifted and keyed a panel into the floor slab in 4½ minutes. Third crane removed strongbacks. Hinged braces, bolted to floor plates, held panels until joined by 2' pilasters.

Meet a building code, save money, and tilt up 600′ of wall in a day

In compliance with Seattle's exacting code, and more economically than with masonry or form concrete, this 1000′ x 330′ warehouse was built of 32′ x 30′ concrete wall panels, flat cast on the loading platform surrounding the site. Three cranes, two outside and one inside the building, handled the 35-ton panels, erecting as many as 20 in one day.

Flat casting and tilt-up is now a common procedure, especially in the West. Its extensive use of ready-mixed concrete, poured on the site, further indicates why properly proportioned concrete must also be properly processed — in truck mixers of *certified* design, capacity, mixing speed, mixing action and accurate water control.

Construction Methods Photo



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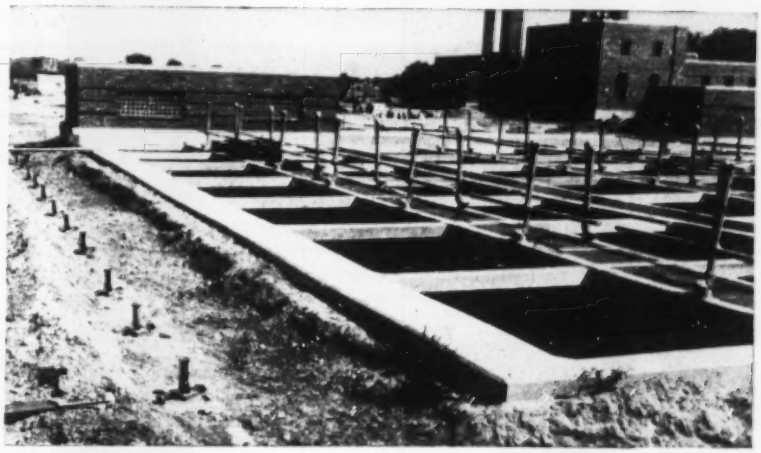
DURING CONSTRUCTION—Wellpoints used were of a special type.



DURING OPERATION—They remain in place to control groundwater.

Permanent wellpoints keep sewage tanks from floating

UHL T. MANN, superintendent of the Ley Creek sewage treatment plant in Syracuse, N. Y., can lower the groundwater around his plant 11 ft in 24 hours by the flick of a switch.

About once each three months he flicks that switch and is able to empty his treatment tanks for maintenance or repair with no fear that they will float. Instead of building all tanks heavy enough to resist uplift when empty, Syracuse chose, when it built the works, to let the needed wellpoints be permanent as a control on uplift pressures.

As a bonus advantage, the wellpoints act as a constant and dependable service water supply. A standard 2-in. electric pump, operating intermittently, pulls water (some 25% of the time) at an estimated 150 gpm rate. This is the sole source of wash water and chlorinating water for the sewage treatment plant.

• **Ample experience**—Syracuse first tried this application of permanent wellpoints away back in 1939. And when it came time for a Ley Creek Plant addition two years ago, Consulting Engineers O'Brien & Gere of Syracuse called for a similar installation.

Two years experience with the new points now prove their worth. In that period the wellpoint system has been used for full draw-down of the groundwater about once every three months. The time for draw-down was in all cases less than 24 hours—about one third of the time specified as maximum allowable. There has been no noticeable settlement of the structures nor any indication of uplift pressures during operation of the system.

Water supply is drawn intermittently from the points with suction of the supply pump, dual-connected either to a 10-in. discharge pipe or in case the wellpoint pump is not operating, directly to the system's header line.

• **Permanence means difference**—Permanently installed wellpoints must be slightly different from a standard temporary system.

The new system at Ley Creek plant has its header line above frost and sloped to drain to an 8-in. gate valve and into a main effluent line from the plant.

Fittings, risers, header and discharge line are all steel with bitumastic coating, rather than cast-iron, wrought iron or bronze. The coated steel was cheaper to buy and install.

Cast-iron service boxes were placed over all header swings and gate valves, allowing individual adjustment to be made from ground level to wellpoints or groups of wellpoints.

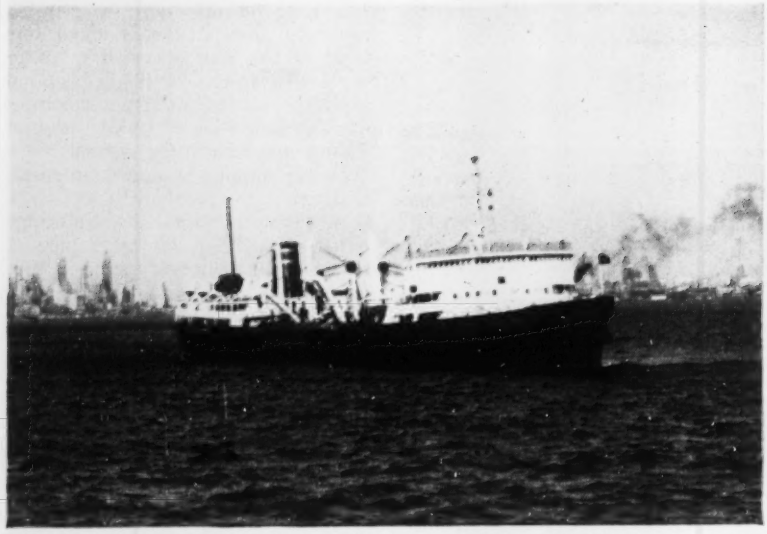
Six test points (piezometers) were installed for accurate measurement of groundwater level.

A special vacuum float chamber and tee connection made it possible to put the pump 10 ft below the header, deep inside the building.

• **Soil a problem**—So-called "black sand" prevalent in the area is a uniform, medium or medium to coarse sand, underlying a loam and clay blanket. It has 51% medium sand, 40% coarse and 9% fine.

Chemical, rather than physical, properties of the "blacksand" caused trouble. The sand is high in calcium and iron salts which tend to deposit when subject to reduced pressures. This forms a thick coating in and around the screens, clogging the wellpoints and cutting down their capacity after 8 years or more. A screen of monel metal expected to reduce the amount of salts deposited was used. As an added advantage, the screen can be cleaned, if clogged, by dipping into an acid bath—the acid inhibited to dissolve the encrustations without attacking the pure metal. After two years of operation, no decrease in flow has been noticed.

Moretrench Corp., Rockaway, N. J., provided and designed the new Ley Creek wellpoint system, as well as the original system at the plant. Candler & Bass, of Birmingham, Mich., were general contractors on the recent work.



WORLD'S LARGEST HOPPER DREDGE—$11¼-million, 525-ft Essayons—made recent floating field trip for Junior Branch of ASCE's Metropolitan Section. Working ship operates around the clock 7 days a week by New York District, Corps of Engineers.

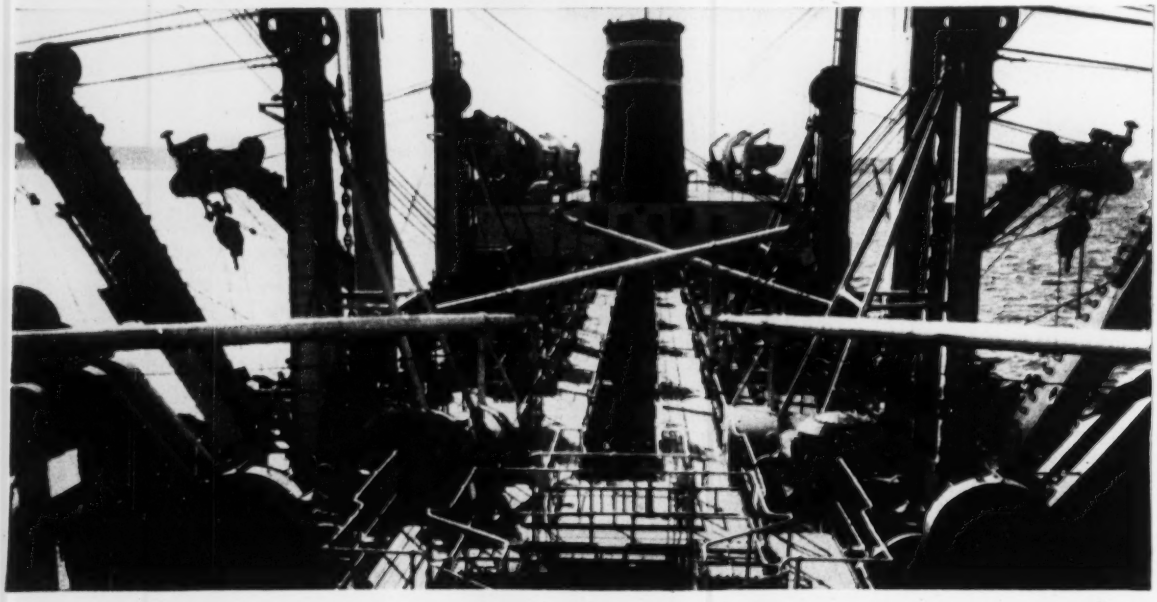
WELCOMED ABOARD—75 young engineers sign on for 60-mi voyage; 90 would-be voyagers had to be turned away.

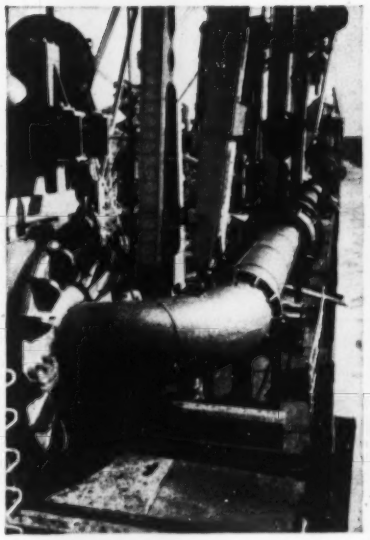
ENR photos by Compton

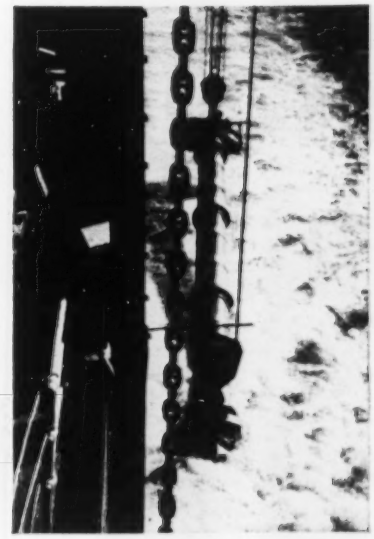
Seagoing civils see hopper dredge at work

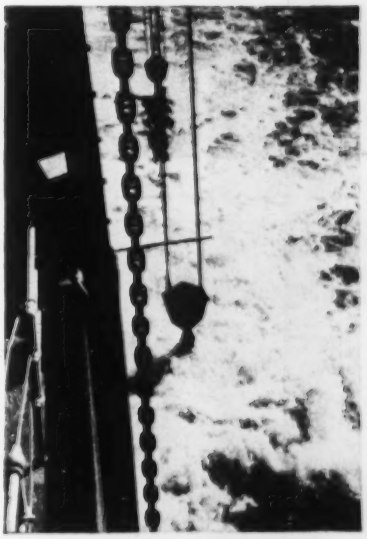
ACTING MASTER and helmsman (left) have radar, gyro compass, ship-to-shore and radio telegraph at fingertips. Ship's full complement is 120 men. Operation cost $5,000 per day.

ON DECK (below) crewmen check imposing array of hoisting gear as twin screws propel vessel along dredging run. Hoppers below this midships area are filling to near 8,000-cu yd capacity.







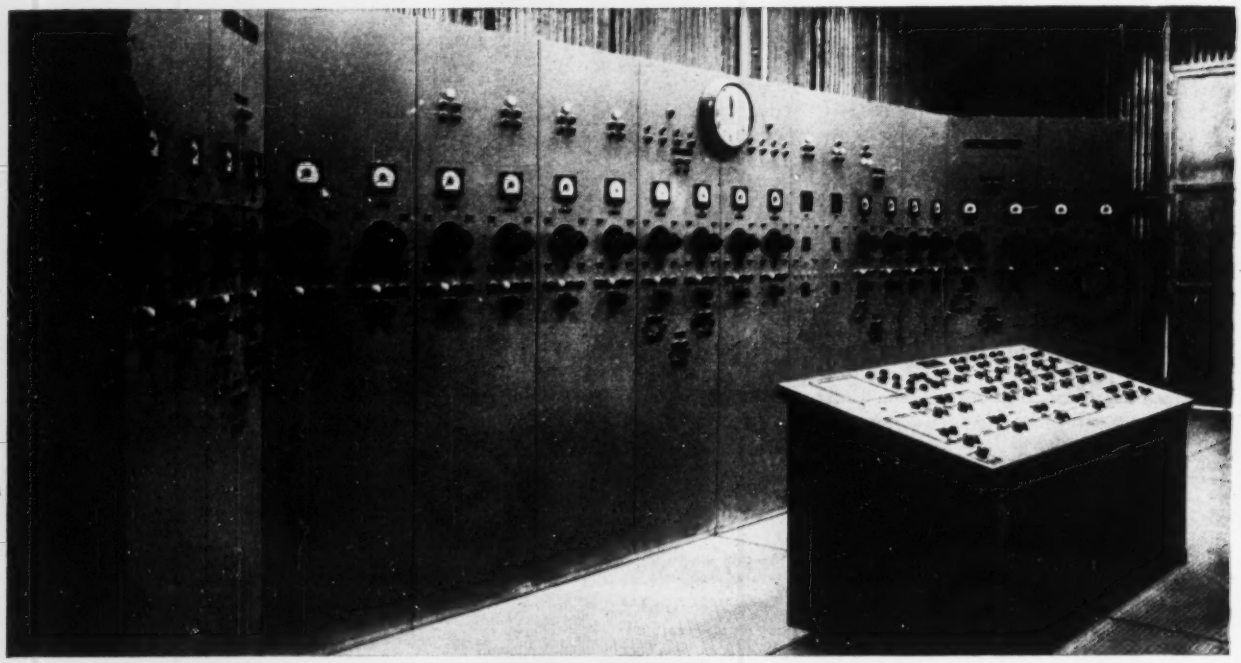


CENTER OF ATTRACTION is detachable dragpipe (above). Sliding trunion (left) at forward end of pipe rides out on tracks, then lowers within guides to position over valved intake opening below waterline in ship's hull. Lowering drag pipe (center and right) can dredge to 75-ft depth.

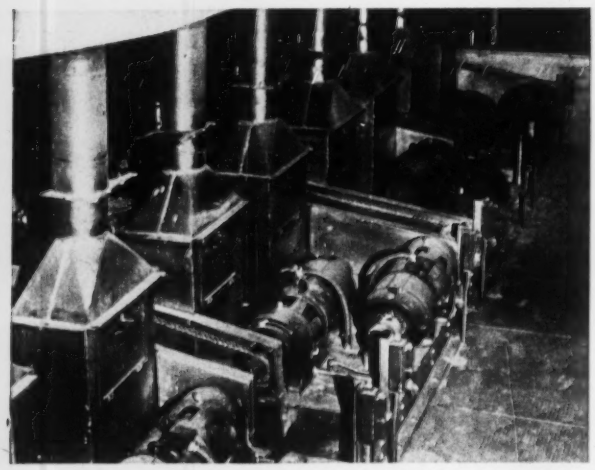
MISSION COMPLETED—With hoppers dumped and being pumped empty on return to harbor for next dredging run, crewman (right) cleans debris from drag head. Superliner United States speeds by, Europe-bound, as Essayons plies its vital million-yard-a-month maintenance chore in New York harbor.

BELOW DECK (below) sightseers find welcomed warmth as they examine control panels and 1,850-hp centrifugals—port and starboard dredge pumps having 36-in. suction lines.

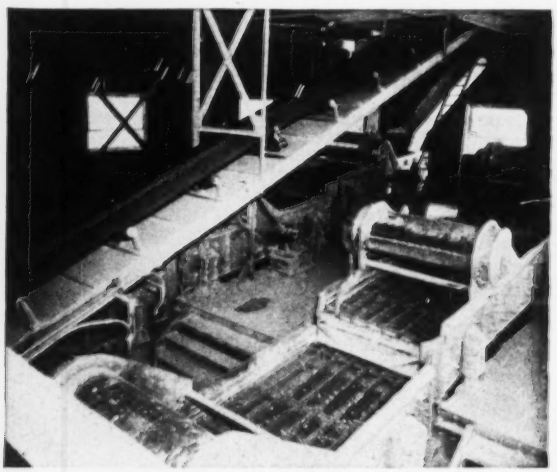
Central Control...



Central Control Room operated by one man: desk type bench board controls flow of stone through screening and blending plant — vertical panel board controls all blending and loading operations.



Drive end of 24" x 4'-6" unit type blending belt feeders showing variable speed gear motor drives and dust collection.



South end showing battery of 5' x 14' double deck Robins Eliptex Screens producing all sizes under 1".

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General view of screening and blending station looking southwest, showing main building, loading bins, main conveyor and recirculating conveyor to secondary crushing station.

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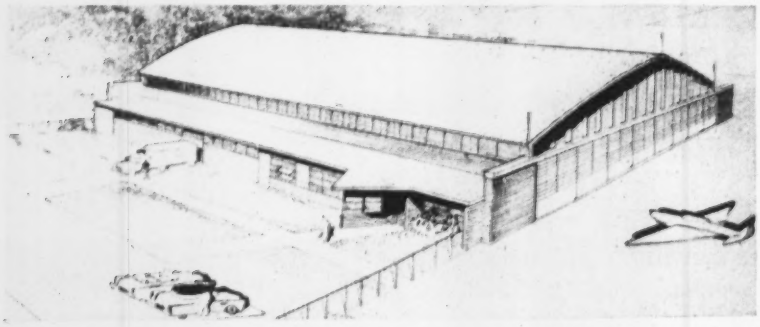

NEW HANGAR for New Orleans Airport will provide facilities for the sale of planes and parts as well as for the routine maintenance of planes.

Expansion of two airports may cost more than $12.2 million

New Orleans Airport will build new hangars; big expansion proposed for Twin-Cities

Expansion plans for two airports at widely separated points—New Orleans Airport and Wold-Chamberlain Airport serving the Twin-Cities, St. Paul and Minneapolis, Minn.—call for a minimum expenditure of $12.2 million with the possibility the figure may be more than $30 million.

The biggest share of the money is tied up with the future plans for the Twin Cities airport. New Orleans is ready to start construction this month on two new hangars that will serve also as sales rooms to cost $200,000. These will relieve present demands for space at the airport.

Hangars will have a steel truss frame topped with a corrugated asbestos roof. Walls will be of concrete block faced with brick. Steel and glass sliding doors at each end of the buildings will open onto large aprons where air and water outlets will be provided for serving and washing of planes.

One hangar will be 140 ft long x 125 ft wide. The other will be a little smaller with dimensions of 120 x 100 ft.

• **For service and sales**—The structures are unusual in that they will operate for both the sale of planes and parts as well as for the servicing of planes.

Each hangar will contain showrooms and the larger of the two will include air-conditioned waiting rooms equipped with study maps and reading lamps. A flight mapping service will be available for pilots. Maps will be on sale at the hangar.

Manufacturers will be provided space for display of late model planes.

• **Airport background** – Originally known as the Shushan Airport, the field was dedicated in 1934 by the Pan-American Air Races.

It was developed on an artificial peninsula built with hydraulic fill. The 5,000,000 cu yds of material is protected by a 10,000-ft step-type concrete seawall. Original cost was $4-million. Elevation of the airport was determined by the height of the highest storm waves recorded on Lake Pontchartrain. The peninsula and airport jut into the lake.

Reasons for the site location are interesting:

• It was not necessary to pay for the site because the lake bottom is the property of the state.

• An airport so situated cannot interfere with natural street development by interposing a solid block of land in the way of normal expansion.

• It affords easier approach and departure as well as more ease in locating the field from the air.

• It provides facilities for sea as well as land planes.

The airport is located about six miles from the business district of New Orleans.

Architect for the hangars is August Perez and Associates. The airport and its facilities are part of a million-dollar lakefront program of the New Orleans Levee Board.

• **Twin-Cities expansion**—An expansion program—over a five-year period—is being mapped by the St. Paul-Minneapolis Metropolitan Airports Commission for Wold-Chamberlain Field, the Twin Cities' major airport. The program is expected to cost a minimum of $12 million with the possibility that it may go as high as $30-million.

Plans call for the acquisition of 450 acres of unused land in the Fort Snelling reservation lying south and east of the present field. The MAC voted earlier this month to seek approval of the project from the Civil Aeronautics Board. If approval is granted, the CAB will negotiate with three government agencies now controlling the Fort Snelling acreage to turn it over to the commission.

Failure to get the Fort Snelling land would require the MAC to run jet planes over the southwest-northeast runway and right over the Veteran's Hospital located at the edge of the airport, according to Robert Aldrich, commission secretary.

The new master plan calls for relocation of State Highways 5 and 100 now running through Fort Snelling and to the airport. New routes would be along the Minnesota River at the south end of the proposed enlarged field.

A local engineering firm, Toltz, King and Day, drew the plans for the expansion. Royce B. Henson is their engineer in charge of airport construction.

• **Plans**—Minimum cost for the expansion, exclusive of land acquisition and construction of new buildings, would be $12 million, according to the engineers. This would include the extension of runways so that jet aircraft and the larger conventional types could use the field with less danger to homes north and west of the field. Henson said the expansion will move aircraft operations another one-half mile from those sections.

The administration building and terminal area, now at the west end of the field, would be moved to the east side of the extended airport. Construction of a new administration building would add $4 million to the minimum cost expected.

The 450 acre acquisition would permit extension of the northwest-southeast runway by more than 3,000 ft. The commission's engineers say that the present runway facilities are either inadequate or will be so in the very near future.

(*Continued on page 55*)

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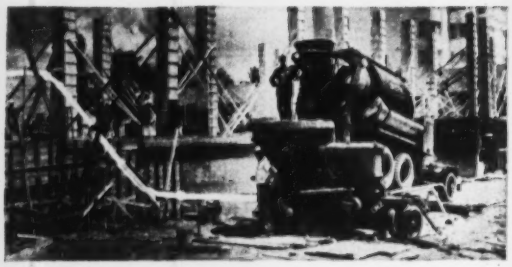

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• **Additional construction**—The top construction figure includes the possible expansion of facilities by two airlines.

Northwest Airlines has been considering a $12-million maintenance base on the field but they claim the Minnesota tax structure is forcing them to look elsewhere. They have been conferring with Chicago officials about locating there.

North Central Airlines has plans for a $2-million building, but there is no definite information as to their intentions at this time.

Parking ban cuts cost of city street cleaning

Alternate-side-of-the-street parking in several New York City areas has reduced street cleaning costs substantially according to a report of the office of engineering of the city's Department of Sanitation. In addition to the monetary saving, the department also found a decided improvement in litter conditions.

In one area—the lower East Side—the saving amounted to $1.5 million.

• **Parking rules**—The scheme works this way:

In the areas in which the plan is in effect, motorists are prohited from parking on the north side of numbered streets and west side of avenues from 8 A.M. to 1 P.M. on Mondays, Wednesdays and Fridays, and on the south side of numbered streets and the east side of avenues, Tuesdays, Thursdays and Saturdays.

Comparative costs for cleaning the lower East Side area—with 54.8 curb miles of streets—are:

• Alternate-side-of-the-street parking with mechanical sweeping and some litter picking: $207,000.

• Manual sweeping as previously practiced in the area with bumper-to-bumper parking conditions and relatively ineffective street cleaning results: $316,000.

• Complete manual cleaning under bumper-to-bumper conditions, but exercised to the point of obtaining street cleanliness comparable with that obtained with alternate-street parking: $1,680,000.

The biggest saving results from the use of mechanical sweepers along curbs without the interference of bumper-to-bumper parking.

The report concludes: "The new parking plan would be the least costly method for meeting the ever-increasing public demand for improved street cleanliness."

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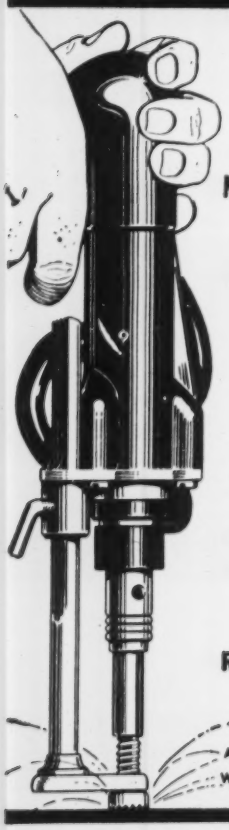

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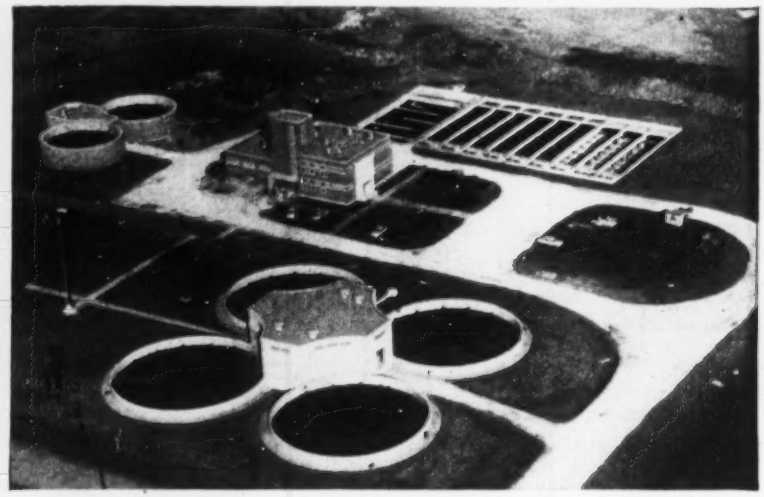

NEW SEWAGE TREATMENT PLANT for Rochester, Minn., uses fine screens before trickling filters. Screens are located in the odd-shaped building located among the filters (lower center). Channel of the Zumbro River used for discharge of the plant effluent is shown passing across the upper part of the picture.

Sewage treatment plant completed

Rochester, Minn., project costs $2 million, and features fine screens

The large volume of milk wastes in the sewage of Rochester, Minn., dictated the use of fine screens in the new sewage treatment plant recently completed. Engineers feared that the use of conventional primary settling tanks would cause the waste to go septic.

The screens used are each 5 ft in diameter and 10 ft long, with 10 mesh to the inch. Before reaching the screens, the sewage passes through bar screens and grit removal units Following the screens are four 80-ft dia trickling filters and final settling tanks. Effluent is chlorinated before discharge.

The plant is located nearly two miles below the city on the South Branch of the Zumbro River, a small tributary of the Mississippi. Waste is received from the city sewerage system through a 48-in reinforced concrete trunk sewer; flow is by gravity to the plant.

Sludge collected from the fine screens and the final settling tanks is digested in two 250,000-gal digesters. Digested sludge is vacuum-filtered, and the plan is to dispose of filter-cake as a soil conditioner.

Laboratory facilities, offices, chemical storage, workshop and garage are concentrated in the main control building.

Engineers for the plant were Toltz, King and Day, Inc., St. Paul, Minn. General contractors were the L. M. Feller Co. and C. C. Pagenhart of Rochester. The trunk sewer was laid under a separate contract for half a million dollars by Carlisle G. Fraser, contractor of St. Paul and Rochester.

Construction was financed by a $2.8-million revenue bond issue sold in 1951 at 1.70% interest. The bonds, as well as the operating costs of the plant, are expected to be paid for from sewer service charges.

Pittsburgh parking garage auto servicing halted

The Pennsylvania Supreme Court recently handed down a ruling that bans the sale of gas, oil, and accessories and forbids auto repairs in parking garages built or planned by the Pittsburgh Public Parking Authority.

That decision leaves it up to the 1953 session of the Pennsylvania legislature to change the law. Authority officials indicated that such changes may be sought.

The authority has maintained that if the garages can't service and repair autos, its entire parking garage program will be placed in jeopardy.

The authority has a contract with the Morrison-Knudsen Co., Inc., for construction and operation of the underground parking garage for which land is being cleared. That contract

(Continued on page 59)

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NEW GRADALL CARRIER

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ON MANY DIFFERENT KINDS of construction and maintenance work—even where working conditions make it impossible to use any other machine—the ruggedness, fast action, and extreme maneuverability of the multi-purpose Gradall have paid off!

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stipulates that the Morrison-Knudsen Co. of Boise, Idaho, shall be allowed to sell gas and oil.

The local press in Pittsburgh says that Morrison-Knudsen may withdraw from the contract in the light of the Supreme Court decision.

• **Two actions**—The State Supreme Court took its action in two different cases:

First it dismissed an appeal from a similar injunction which had been issued by the Allegheny County Common Pleas Court. A commercial garage and other interests had obtained that injunction in the lower court.

In the other case, the Supreme Court issued its own injunction, banning services and repairs in a case brought by Mary J. Clark, a taxpayer. She had brought a test suit designed to block the authority's plans to build a five-story underground parking garage.

The high court disagreed, however, with another contention made in the Clark suit. The court said the parking authority had the right to let another agency set the rates for parking without competitive bidding.

More than $4 million now is tied up in the Mellon Square site of the proposed underground parking garage. Two other parking garages have been completed.

Freeway fails to reduce traffic congestion

Traffic engineers designed the Montgomery Freeway from downtown San Diego, Calif., to the Mexican border largely as a bypass for the business districts of Chula Vista and National City, Calif.

The limited access four-lane highway went into operation just a year ago.

Last month Edward M. Hall, traffic engineer for San Diego County, reported the new freeway had failed to relieve traffic congestion in the two business areas. He cited these figures:

Before the opening of the freeway, main routes used were Highland Ave. with a traffic count of 11,000 vehicles daily, and National Ave. with a count of 16,000 vehicles. Both routes pass through the business districts of the two towns.

At present the new freeway has a daily average traffic count of 16,000 and the count on the two old routes has remained the same. Hall says the net effect of the freeway has been to induce an additional 16,000 cars daily to travel between San Ysidro on the Mexican border and San Diego.

Roof-truss design and fabrication by Timber Structures, Inc.

How American Textile protects their dye house trusses and roof-deck from rot and decay

• In 1951, when American Textile Processing Co., Inc. planned their new dye house in Paterson, New Jersey, they designed one of the most modern plants in the industry. The roof of a dye house calls for the insulating qualities of wood . . . but the constant presence of acid vapor, steam and condensate makes for a serious maintenance problem. American Textile Processing solved this problem by specifying that all wood used in the trusses and roof decking be pressure-treated Wolmanized® lumber.

Wolmanized lumber is clean, odorless, paintable and non-leaching. The ability of Wolman preservative salts to prevent decay or insect attack makes any lumber last longer in the presence of moisture and termites. There are Wolman preservative treatment plants in all parts of the country. For further information, write:

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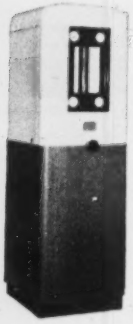

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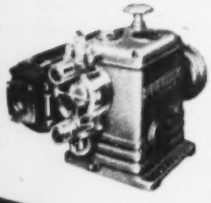

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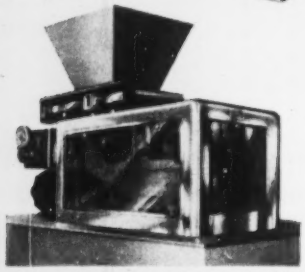

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Please send Application Memo 840-J38 describing system for batch treatment of cyanide wastes.
Please send "Industrial Wastes Treatment Guide".

NAME
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Contractor rating plan proposed

Philadelphia considers method to check on past performance of bidders

Disclosures of faulty work on a $18.2-million playground program has prompted city officials of Philadelphia, Pa., to propose a rating plan for contractors bidding on future municipal work. The new system will show in general whether a contractor has done a successful job in the past.

• **Plan details**—Factors to be taken into consideration in the performance chart will include:

• The date a construction job is scheduled to start and the date it actually starts,
• The scheduled completion date and the actual completion date,
• The amount of cooperation shown by the contractor,
• His ingenuity in obtaining materials,
• His efforts to keep the job moving,
• The quality of workmanship, and
• The quality of supervisory help.

A record would also be kept of delays caused by city employees. The plan would apply to all contractors and sub-contractors doing work for the city.

Managing Director Robert K. Sawyer, who announced the plan, said it will be put into effect in time to apply to the $79-million worth of capital improvements planned by the city.

• **Background**—Sawyer said the plan has been spurred by the current appeal of Felix Clauss and Sons, Philadelphia contractors, to set aside a decision by the city barring that firm from bidding on all sewer projects planned for the northeast section of the city. The ban on the Clauss firm was imposed because of alleged faulty work on new city playgrounds.

The Clauss case is only one of a number of disclosures to come out of a probe of past municipal construction contracts by a committee of city councilmen. They charged that the city lost $1 million through poor workmanship, inadequate planning and hit-or-miss methods in the city's playground program from 1945 to 1951.

The investigating committee also said that the Clauss firm should be restored to good graces by the city's Procurement Department. They said that the firm recently had shown cooperation and had indicated a willingness to correct any work they found faulty.

• **Competition for architects**—The idea also will be carried over to the selection of architects for future work. Competitions will be set-up to select the best qualified architects for the new $2-million addition to the Home for the Indigent and the new $400,000 Health Center for the Department of Health.

The competition, according to Sawyer, would be limited to Philadelphia architects.

Sawyer asserted, "Through it we hope to get the best ideas and to find architects who previously may not have had a chance to bid. We are looking for men who know something, not somebody."

City cancels contract, troubles not over

The city council of Columbus, Ohio, paid $5,000 to get out of a $50,000 street widening contract—but its problems aren't over yet.

R. J. Dienst & Son, contractors, were awarded the contract last July 29 as part of the widening of Mt. Vernon Ave. The Businessmen's Association of that avenue protested because sidewalks would have been narrowed by three feet and the council therefore decided to buy up the contract. However, utilities along the route had been moved before work was stopped and the city is now faced with the following problems:

• The Columbus Transit Co. set back 25 utility poles at a cost of $1,100 and if the city wants the poles back in their original place it will cost $1,100 more. The poles are now in the middle of the sidewalk.
• The city's municipal division of electricity took down 10 light standards on the south side of the street which now is lighted only on the north side. It is estimated that it would cost $600 to re-set the missing standards.
• Three fire hydrants were moved and are now about four feet from the curb.

Robert Werner, city engineer, said that the action of the city council in backing out of the project has encouraged others to fight city improvements.

The city hasn't released plans for the utility relocation.

(Continued on page 62)

Moving Day for the St. Lawrence

Shaded area shows additional facilities which will increase Beauharnois' production to more than 1,400,000 h.p.

MOVING A RIVER may sound fantastic, but the Ellicott-designed "Hydro-Quebec," world's largest hydraulic pipe line dredge, has begun work on a project that will eventually divert practically the entire flow of the St. Lawrence River! The project is part of the expansion program of the Quebec Hydro-Electric Commission. When completed, the Commission's installation at Beauharnois, Quebec, will be the largest single-site hydro-electric plant in the world, with electrical output of more than two million horsepower.

Main work of the "Hydro-Quebec" consists of widening and deepening the 15-mile Beauharnois Canal to provide the necessary volume of water to operate the plant. This channel will also serve as a navigation canal which, when tied in with the proposed St. Lawrence Waterway by locks, will permit passage of ocean going vessels.

* * *

Whether *your* dredging problem is moving rivers or maintaining irrigation canals, or any of a thousand other projects, Ellicott's 67 years of experience in the engineering, design, manufacture, modernization and operation of dredges can help *you*. For more information about Ellicott dredges and dredging services, write for Catalog 825 to: ELLICOTT MACHINE CORPORATION, 1603 Bush Street, Baltimore 30, Md.

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LAST LONGER—REDUCE MAINTENANCE

Heltzel believed they built the strongest, most serviceable road form in the world. They decided to submit their form to a series of grueling tests to find out just how much abuse it could take.

First of all, they bolted a Heltzel form to a similar form of another make. Inserting a jack at the center point they applied pressure to compare bending moments. The Heltzel form remained rigid while the other form weakened and bent to the pressure.

Secondly, they put the two forms to an impact test. Two men wielded sledges and alternately attempted to smash the forms apart. Here again the Heltzel form withstood the punishment as the second form was damaged beyond repair.

Finally, they set up two lines of Heltzel forms and backed a loaded freight train over them without a sign of failure.

What does all this prove? Simply that when you buy Heltzel forms you're getting the best that money can buy at no increase in price. A road form must be able to withstand punishment year in and year out, with replacement held to a minimum. That's why Heltzel engineers have gone to such great lengths to design and build and to prove the Heltzel form is the finest ever made.

Let Heltzel prove it to you. It will pay handsome dividends. For additional information, or the name of the Heltzel representative nearest you, write THE HELTZEL STEEL FORM AND IRON CO., WARREN, OHIO.

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Master plumbers eliminated in revised Phoenix code

A three-part decision has solved the master plumber controversy at Phoenix, Ariz.

City council members have now voted to:

- Abolish the licensing classifications of master plumber and journeyman plumber and replace them with a single category of registered plumber.
- Separate the plumbing license from the right to do business as a plumbing contractor.
- Change the composition of the city plumbers examining board.

The decisions ended a month-long controversy between the council and the city's 41 master plumbers and journeymen plumbers, which restricted installation permits to master plumbers only.

The masters claimed the arrangement assured high plumbing standards through such supervision. Council objections noted that many firms had great numbers of journeymen working under a single master plumber, and actual supervision under such an arrangement was almost impossible.

The new examination for registered plumbers will be more rigid than the old journeyman's test, but will be less difficult than the examination for masters. Present holders of master's certificates will be registered without examination, but journeymen will be required to pass an examination to qualify.

Permits to install plumbing will be issued to anyone who has a good reputation and who is able to supply a $5,000-bond with the city. Actual work, however, must be done by a registered plumber.

The new plumbing board will be increased from three members to five and will include a registered engineer, registered architect, registered plumber, a public health officer, and the city plumbing inspector who has the privilege to vote only in case of a tie.

Prefab development

Work has started on a $30-million housing development near Joliet, Ill., featuring 1,700 prefabricated homes. Supplier of the two- and three-bedroom units is the National Homes Corp. Twelve acres of the development will be devoted to a commercial center estimated to cost $10 million.

"not one cent in actual radio maintenance!"

GE Industrial 2-WAY RADIO

EXCAVATING — GRADERS — DRAGLINES — LOADING SHOVELS

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Mr. C. H. Chaney
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July 17, 1952

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Looking forward to our continued association, I am

Very truly yours,
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E. F. Goetz

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Give a lift to your fluid handling operations and put your pumping processes on a trouble-free basis. Talk to a Weinman centrifugal pump specialist.

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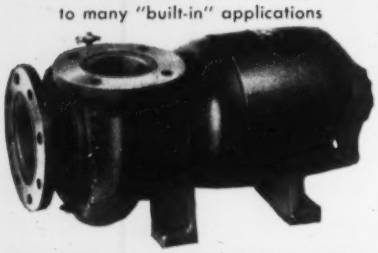

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The WEINMAN Pump Mfg. Co.

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Municipal briefs . . .

• **Garbage fertilizer**—Columbus, Ohio, can save about $300,000 on its garbage disposal costs if the plan of a local farmer proves feasible.

Harold S. Carruthers claims he can turn one ton of garbage into a salable organic fertilizer by adding only one ounce of bacteria. The conversion takes three weeks.

City officials will look into the proposal and if it is all that is claimed, probably will agree to supply Carruthers with sufficient garbage to test the process on a larger scale.

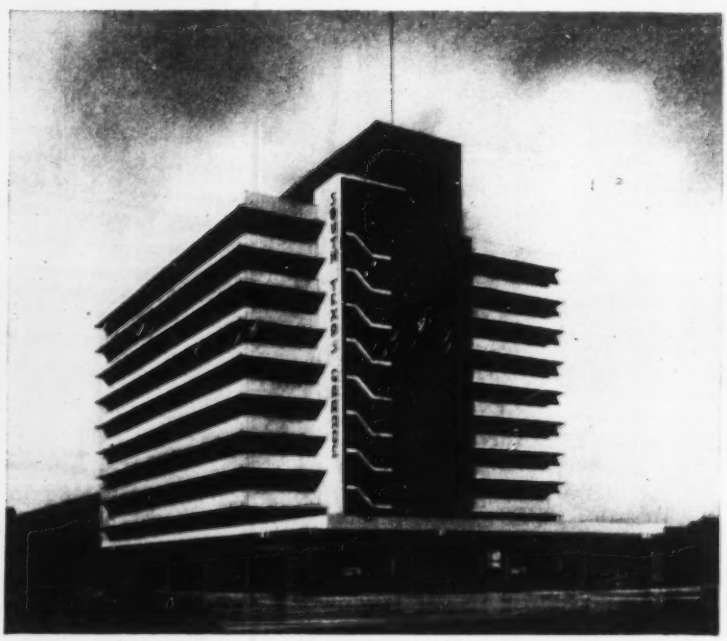
It is interesting to note that a similar operation in Oakland, Calif., (ENR, June 26, 1952, p.44) uses 32 bacterial strains in its operation while Carruthers figures on 52 strains. A comparison of the resulting product from the two processes is not available.

• **Houston grows**—The Houston Port and Traffic Bureau announced recently that the Port of Houston, Tex., had one arrival or sailing every hour last year. It was the harbor's busiest year, with 7,535 ships moving though the channel. Total cargo amounted to 45,497,931 tons with a value of more than $2 billion.

The port is serviced by 99 dry cargo and 93 tanker lines that operate to 250 ports all over the world.

• **Snow savings**—The snow that didn't fall into taxpayer's lives in Cleveland, Ohio, saved them more than $500,000 this past winter.

A fall of only 26 in.—compared with 75 in. last year and 77 in. in 1951—meant a saving of $300,000 in actual removal expense, another $100,000 on street repairs, and $100,000 saved on wear and tear of city equipment.

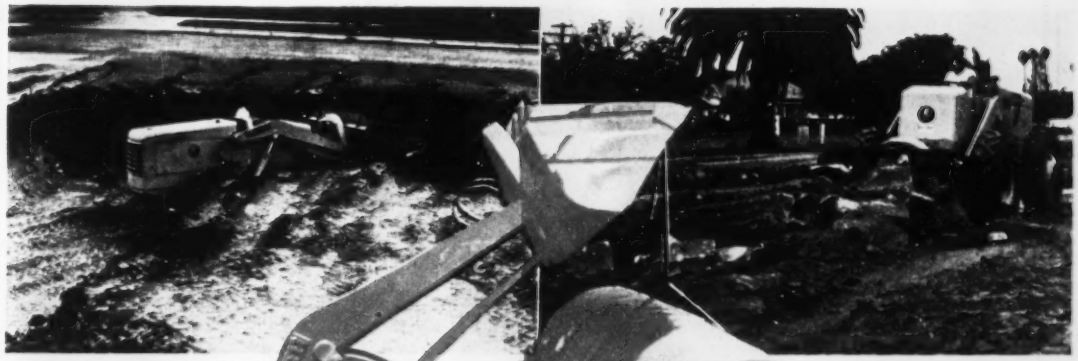


10-story garage proposed in Texas

Construction is expected to start in May on this 10-story combination garage and drive-in bank building, to be erected on a plot of about 100x125 ft at the corner of Travis St. and Clay Ave. in Houston, Tex., by the South Texas National Bank.

The reinforced concrete structure will park 450 cars at one time and cost about $750,000. The bank will provide drive-in banking windows and allot certain parking space for those patrons who desire to do their banking in the main building. A tunnel under Travis St. will provide passage for bank customers and tenants of the new bank building also to be started across the street in May.

Cars will be served by four elevators using a patented system in which the elevators move both vertically and horizontally to park the cars in slots.



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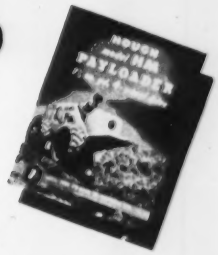

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Here's proof:

A recent job emphasized the value of this service difference. Modestly, we hope, we give it mention here.

Architect Joseph D. Murphy with artist Robert Harmon and stained-glass window fabricator Emil Frei had an imaginative idea for a great window mural for St. Ann's Catholic Church in Normandy, Missouri. But there was a design problem. Working closely with Architect Murphy and contractor Oscar Schneiderhahn, Ceco helped work out a solution. Steel was recommended for the window with the outside frame and intermediate mullions made up of heavy channels.

Ceco designed standard window sections to fit between the channels. A mullion was provided consisting of ¼" flat plate with Ceco head and sill sections of intermediate design. Ceco standard intermediate "T" muntins served as cames for the leaded glass.

But Ceco Engineering Service went further. Design of the reinforced concrete floor joists, employing Meyer Steelform construction, again provided savings in men, money and material. Ceco also supplied reinforcing steel and all windows, screens and screen doors. CECO

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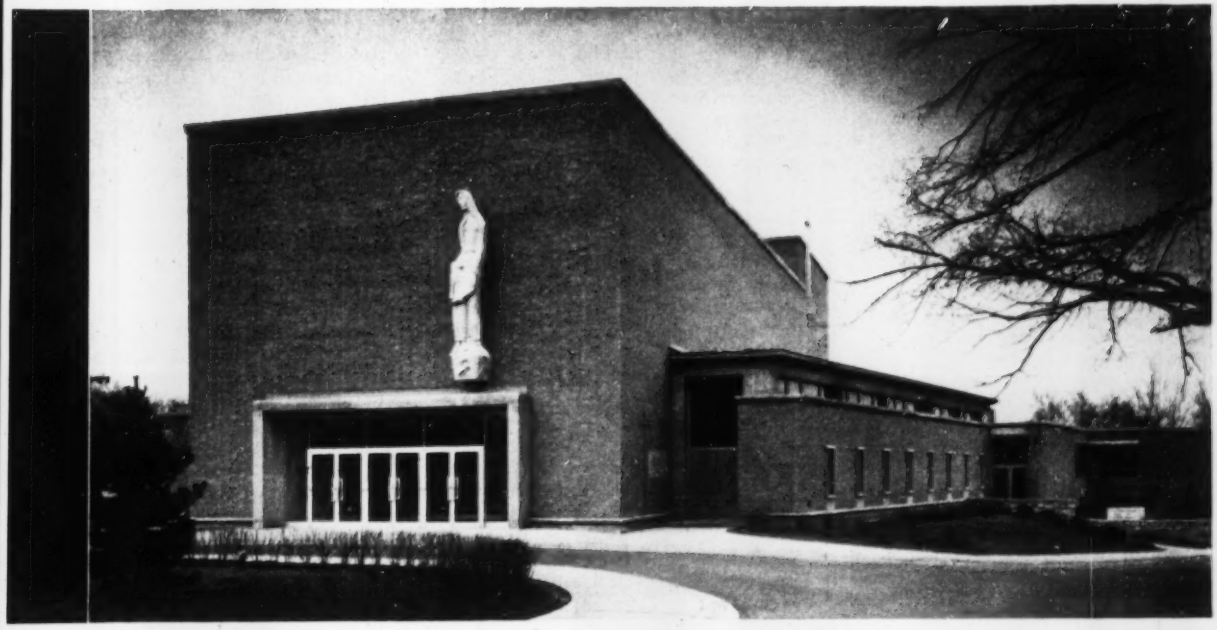

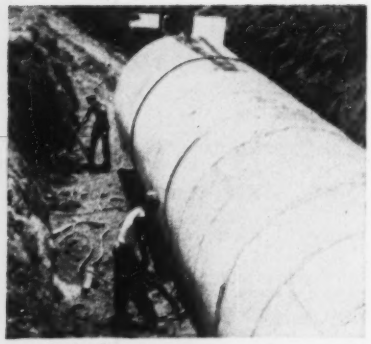

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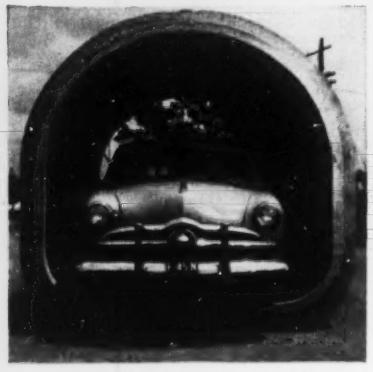

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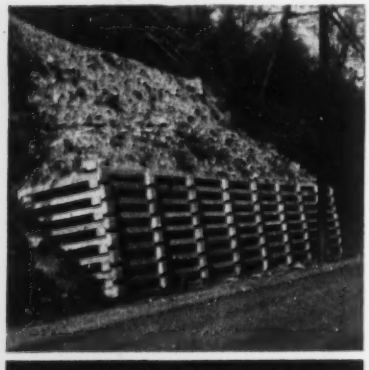

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ENR photo by Compton

SETH G. HESS: He fights pollution of three states' rivers and harbors.

Waterfront crime means pollution to tri-state clean-up agency engineer

In these days of televised hearings, headlines, and general hullabaloo about crime on the New York City waterfront, it's satisfying to consider a quietly effective campaign being waged in the tri-state metropolitan area against the "crime" that is water pollution.

Last month the Interstate Sanitation Commission (New York, New Jersey and Connecticut) issued a report on its sixteenth year of operation. And also last month, Seth G. Hess completed 16 years as director-chief engineer of the regulatory agency.

Hess is a soft-spoken, reserved person, not prone to playing up progress in his commission's fight to clean beach and harbor waters. But during 1952 alone, sewage treatment plants put in operation in the commission's area totaled a capacity to treat 314 mgd. This is more sewage than was produced by any U. S. city other than New York or Chicago. It is enough treatment capacity to handle the entire sewage flows in any of 21 states.

ISC points out in its annual report that 1952 was an especially big year, with two major plants (Hunts Point and Owls Head) having been brought into operation by New York City's Department of Public Works (ENR Feb. 19, p. 160). The report stresses the point that progress in any one year results from build-up in prior years.

• **Need pressure**—That's what Hess means when he says pressure must be maintained to keep the clean-up program moving. He believes a part of his job is the building and maintaining of a public consciousness of water pollution and the need to do something about it.

"We can't let our efforts die; people will forget," he says of the need to hold pressure high for expenditures on sewage treatment.

Take New York City, for example.

It has been building right along at roughly a $25-million-a-year clip on its sewage treatment program. Some $144 million has been spent or appropriated—largely since the present program began in 1948. Another $23 million will have to be spent this year if all class A (recreational) waters are to be cleaned up in 1953 as scheduled. And the clean-up of class B waters due for completion by 1959 is to cost another $150 million—$25 million per year.

Meantime, the city's sewer service charge, instituted in 1951, is realizing $13 million annually at its one-third-the-water-bill rate. Obviously, money in addition to sewer revenues must be allocated from general funds of the city if the projected schedule of pollution abatement is to be met.

"The people have to want pollution abatement," says Hess. "Public recognition of the problem is as important as authority to compel its solution."

• **Club needed**—But he frankly admits that he has been glad to have the authority to compel compliance with orders. It has come in handy more than once. In 1949 his commission went all the way to the Supreme Court of New Jersey against Union City, Weehawken and West New York—and won.

ISC's authority to issue orders is helpful to the individual states; New York, for instance, must prove a menace to public health in their discharges before it can move against any of its erring municipalities. ISC can move in more readily at times.

The commission is helpful to cities, in this round-about sort of way: It can order expenditures if and when local administrators are reluctant to burden taxpayers with the extra cost of needed sewage treatment.

"It is a moving program," says Seth Hess. While pushing for completion of new works from New Haven to Sandy Hook, from Port Jefferson, L. I., to the Bear Mountain Bridge over the Hudson, the commission must keep cities renovating old plants.

• **Work ahead**—There is plenty of work ahead. New York City has still another one-third of its 1.1 billion gallons a day of sewage to treat. And in the whole ISC area, there remains about 370 mgd of sewage still untreated, or about 30% of the total flow. Plants planned and not yet under construction will have capacity to treat 850 mgd. Plants now under construction have 80-mgd total capacity.

(*Men and Jobs continued on page 72*)

ANOTHER *ESCO* MONEY SAVER!

The new UNIVERSAL SCARIFIER

FITS ALL GRADERS

Reduce your SCARIFIER Stock WITH ESCO'S NEW UNIVERSAL SCARIFIER ...FITS 24 DIFFERENT MODELS OF THE FIVE MAJOR GRADERS NOW IN USE! YOU SAVE ON TRANSPORTATION AND INVENTORY BECAUSE YOU NEED ONLY ONE ESCO SCARIFIER TO FIT ALL YOUR GRADERS. WRITE FOR FULL INFORMATION.

The tougher the job gets, the tighter the scarifier point grips the shank in this specially designed groove. Point* and shank are long-wearing ESCO high-alloy steel.
*Pat. No. 2,222,071

IT OUTLASTS THEM ALL!

Fits 'em All

REPRESENTATIVES IN ALL MAJOR CITIES

ESCO ELECTRIC STEEL FOUNDRY CO.

Offices and Warehouses: New York; Los Angeles; Washington; Centralia; Lake City, Utah. In Canada:

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Progress in Motor Grader Design

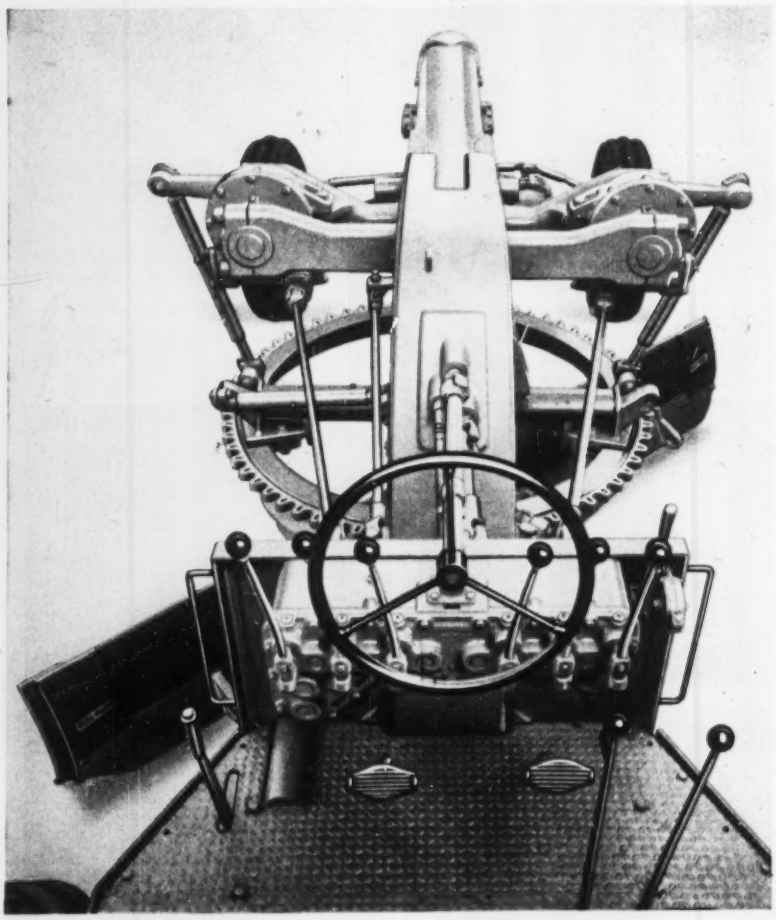
Allis-Chalmers' new AD-40 shows importance of visibility. Operator can see front wheels — both ends of blade while he works. Other operator conveniences include a new kind of power steering.

A MOTOR grader operator has to be able to see his work to do a good job, whether he's rolling big windrows or doing highly accurate finishing.

Here is how Allis-Chalmers engineers made sure the new AD-40 met these requirements. They carried A-C's single-member frame all the way from the front axle to the platform; cut down the size of the lift cases to eliminate blind spots; lowered the control box and eliminated assemblies from the front panel to provide better visibility or the work area directly in front of the operator; tapered the front edges of the platform so that he could see both ends of the moldboard as he works.

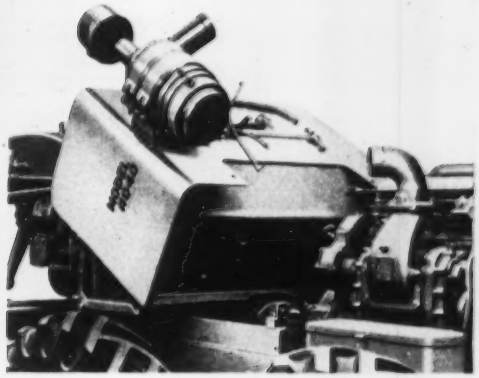
A-C field engineers also knew that a grader operator likes to sit down whenever the job permits. So they've not only given him ample leg room for stand-up operation, but also a steering wheel of adjustable height and a seat that rolls forward at a touch for sit-down operation.

These advanced design features combine with others, including a new kind of power steering for more and better work, and unusual accessibility for easy servicing, to make the Allis-Chalmers AD-40 an increasingly popular favorite with operators, owners and maintenance men alike.



Here is actual view operator has from platform of Allis-Chalmers AD-40, showing how well he can see both ends of the blade and both front wheels.

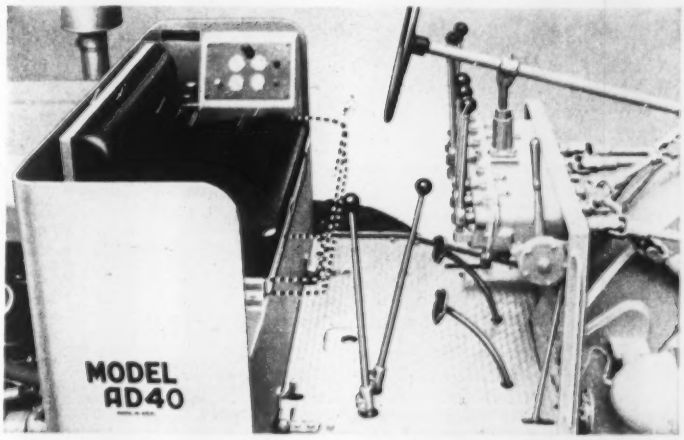
The AD-40 has unusual accessibility for maintenance and repair. Combined fuel tank and seat unit tilts forward for easy access to clutch, transmission and drive shaft. Transmission is removed without disturbing engine or floor plates.



Note the AD-40's wide, clean platform, convenient controls and cushioned, adjustable seat. Steering wheel also adjusts to fit height of operator. These practical features help the operator do a better job.

New built-in power steering system retains accuracy and roadability of mechanical steering — and adds ease and smoothness of hydraulic steering. Helps do more work, easier and safer.

The AD-40 has 104 brake horsepower, weighs 23,000 pounds and has tandem drive traction; all it needs to do a better job on heavy-duty construction . . . a faster job on maintenance.



41,000 POUNDS

175 NET ENGINE HORSEPOWER

GM 2-CYCLE DIESEL ENGINE

ALLIS-CHALMERS

TRACTOR DIVISION • MILWAUKEE 1, WIS.

A-C ALLIS-CHALMERS

Briefs from the YEOMANS GUARD

Hard to Kill A Shone? . . . It Sure Is!

A frantic SOS from a Midwest town to Yeomans Service brought to light the following epic of how not to take care of equipment.

● *Six years earlier, the municipality had bought a 100 gpm Shone Pneumatic Ejector for installation at a major lift station in its sewerage system. When the ejector was delivered it was decided not to install it immediately.*

Now it was time to put it to work —and a Yeomans trouble-shooter answered the call.

He found that the Shone pot had been "stored" on the river bank—was choked with mud and trash and almost hidden by weeds. Compressor and motor had been partially sheltered, were in better shape.

To clean the pot was a tough several-hour job; and the compressor had to be thoroughly cleaned and tested. With that done, he checked the pit and found that it must be enlarged and rewired. To top it all, the town fathers had to have the job done in a matter of hours because the normal functioning of the sewerage system "must not be interrupted."

It wasn't.

Apt comment of the Yeomans man: "You can kill a Shone service man—but you can't kill a Shone."

☐ Please send Shone Bulletin

® *Trade-mark registered.*

Difficult Industrial Wastes Successfully Treated In Yeomans Plants

A number of industrial wastes, including some described as "difficult", are being treated in Yeomans plants —with results described in some instances as "miraculous."

Efficient treatment is the main objective, of course; but the extraordinarily low cost of Yeomans plants —as to both construction and operation—is a factor that is pleasant to consider.

If you have a knotty problem of industrial waste treatment, it makes much sense at absolutely no cost to find out how we may be able to help solve it. Just write a letter.

Glidden St. Louis Plant Enjoys Flood Immunity

In 1947 the rampaging Mississippi overran the levee at St. Louis and barged joyously into several hundred basements—including that of the Glidden Company plant. Result: tons of spoilage, a messy clean-up job, a severe pain in the exchequer.

Once was enough—and Glidden installed a Yeomans Wet Pit Pump.

In '51, when the Father of Waters staged a "repeat performance," that Yeomans Pump paid for itself many times over—

- no water in the Glidden basement
- no desperate, costly moving things
- no clean-up afterward

The pump is a Yeomans Series 8000 Screenless Ejector.

Want the world's greatest bargain in Flood Insurance? — get a Yeomans.

☐ *Send Bulletin 3-8000*

New Yeomans Plant Features Straight-Line Flow

Noticed the new address used in these "ads"? — Melrose Park, a suburb of Chicago. Steadily increasing sales of traditionally good pumps and waste treatment equipment made a larger plant necessary. Two years of study and planning, and several months of construction made it a reality. The entire plant represents straight-line flow of materials and streamlined methods for production of custom-built and standard equipment.

In short, the new plant's function is to meet the requirements of a growing list of users of pumps and waste treatment equipment, who insist on having "the best."

The Yeomans Guard, published several times a year, is a compendium of news and useful information covering the pumping of materials and the treatment of wastes, both domestic and industrial. We shall be pleased to send you the current issue if you'd care to have it. Ask your local Yeomans Representative —listed in the telephone book yellow pages under "Pumps"— or write direct.

YEOMANS BROTHERS COMPANY

1999-1 N. RUBY STREET, MELROSE PARK, ILLINOIS

Manufacturers of: Centrifugal Pumps and Pneumatic Ejectors for Buildings, Municipalities, and Industrial Applications, and a Full Line of Waste Treatment Equipment.

C. P. STREET, new AGC head

C. P. Street elected AGC president in Miami

As the Associated General Contractors of America wound up its 34th annual meeting this week in Miami, it seated its new officers for 1953.

New president is C. P. Street (picture), Charlotte, N. C., building contractor, who takes over from A. S. Horner, of Denver. John MacLeod, of Paramount, Calif., was elected vice-president. William Muirhead, of Durham, N. C., continues in the permanent office of secretary-treasurer.

Street is secretary and general manager of McDevitt & Street Co., which he joined after leaving college in 1922 (when it was called the McDevitt-Fleming Co.). He has held his present post since 1940. His firm has had a hand in many projects throughout the Southeast. The municipal auditorium at Tampa, Fla.; Veterans Administration hospitals at Birmingham, Ala., Clarksburg, W. Va., and Durham, N. C.

Street has been chairman and vice-chairman of A.G.C.'s building contractors' division, and was for several years chairman of its public relations committee. Currently, he's a member of the executive committee.

MacLeod, who was born in Scotland in 1893, has headed his own firm since 1929. He's noted as a builder of dams, Army and Navy ordnance test stations, air bases and other military installations, and industrial facilities, particularly for the oil industry.

Right now, MacLeod is chairman of A.G.C.'s public relations committee and a member of the executive, finance, labor, progress committees.

with dependable GarWood "ROLLING WEDGE" ACTION

Here, in the heart of the hoist, is where the years-ahead design of Gar Wood's famous "Rolling Wedge" cam and roller action pays off in superior performance and unmatched dependability. Exclusive "Rolling Wedge" cam and roller action provides built in control of oil pressure during the entire lifting cycle. Oil pressure remains uniform at all times—there are no sudden changes from low to high or from high to low. Pump life is substantially lengthened and sudden shocks to hydraulic system are eliminated.

Scientific cam design with exclusive, lift-proportioned cam contour provides maximum lifting effort at the start of the lift *without increased hydraulic pressure.* Reduced cam entering angle gives greater lifting effort with slower, smoother action at the start. Stresses to hoist and chassis are eliminated. As the rollers are forced deeper, cam contour changes to provide accelerated lifting as the center of the mass is moved towards the discharge end of the body. *Oil pressure remains uniform during this entire lifting cycle.*

For smooth, dependable operation—and for longer service life in rugged dump-truck operation—specify Gar Wood "Load Engineered" Dump Bodies and Hoists when you buy new equipment. There's a size and type to fit your needs exactly. See your nearby Gar Wood dealer soon or write direct for complete specifications and application information.

2M108

Gar Wood Industries, Inc.
36008 Main St., Wayne, Michigan
Att'n: Customer Service Dep't.

Please send me complete information about Gar Wood Dump Bodies and Hoists for my hauling job.

Name_____

Company_____

Address_____

City_____ Zone____ State_____

Describe operation briefly_____

GAR WOOD INDUSTRIES, INC.
WAYNE, MICHIGAN

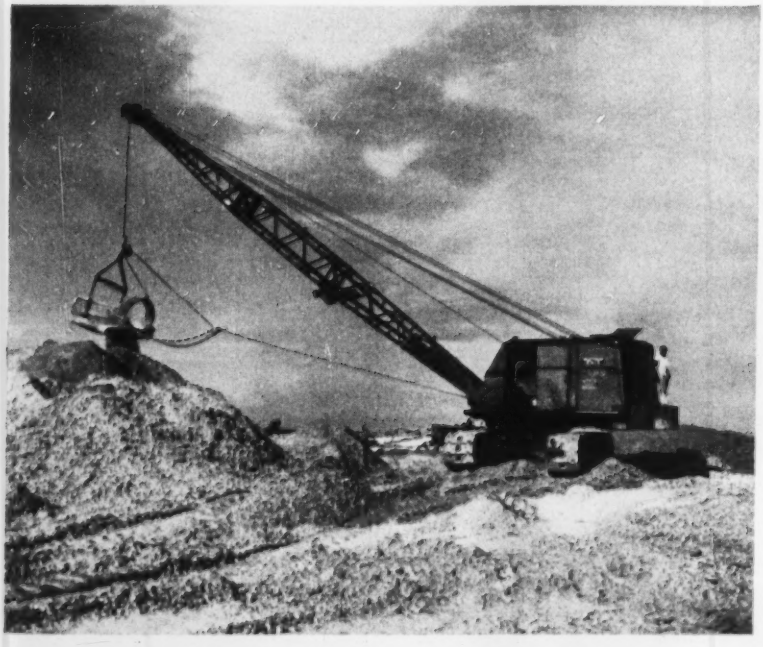
GAR WOOD GW INDUSTRIES

TRUCK EQUIPMENT: Dump Truck Bodies and Hoists, Winches and Cranes, Refuse Collection Units, Revolving End-Gates. CONSTRUCTION EQUIPMENT: Excavators, Scrapers, Dozers, Shovels, Spreaders, Finishers, Truck-Mounted Road Graders.

Caterpillar Diesel armada pushes through new Pensacola jet base

▲ THIS NO. 12 Motor Grader is leveling one of the long jet runways at the Forrest Sherman base.

A CAT D13000 Diesel Engine powers a Bucyrus-Erie dragline, moving shell from stock pile to crusher. ▼



Building the roads and runways for the new Forrest Sherman jet base at Pensacola, Florida, is pretty much a Caterpillar show. Smith Engineering & Construction Co., of Pensacola, uses about 75 of the big yellow machines, including all types of equipment.

The land on which the installation is being built was an Army fort during the last war, and will now become part of the big Pensacola Naval Air Station. The runways are 70% crushed shell mixed with 30% sand and spread 17 inches deep. This is compacted to a 12-inch finished base.

Earth taken from the cut for the runways is used as fill for a new entrance road to the field. 180,000 cubic yards will be moved on the road-building job, and it is being done by fast Cat DW21 Tractors and No. 21 Scrapers, hauling loads up to 20 heaped yards.

A Woods mixer, pulled by a D8 Tractor, is used for rapid mixing of the runway material. And Cat No. 12 Motor Graders prepare the ground and level the mix.

Mr. A. W. Gordon, Superintendent, says: "At one time we had about 50 machines of other makes. We've gradually sold them out and standardized on Caterpillar. I'm partial to them, having worked one of the first tractors sold, back in 1928. Some of our

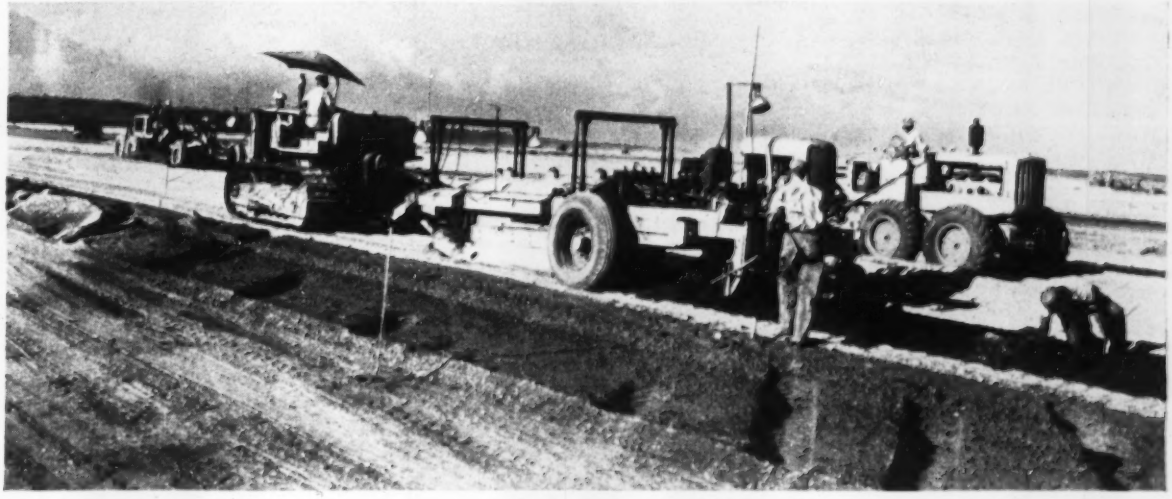
present Cat equipment is more than 10 years old and still running strong."

Standardizing on Caterpillar machines is sound practice. It simplifies the problem of operator training, allows quick repairs with interchangeable parts, and places undivided responsibility on one manufacturer and one dealer.

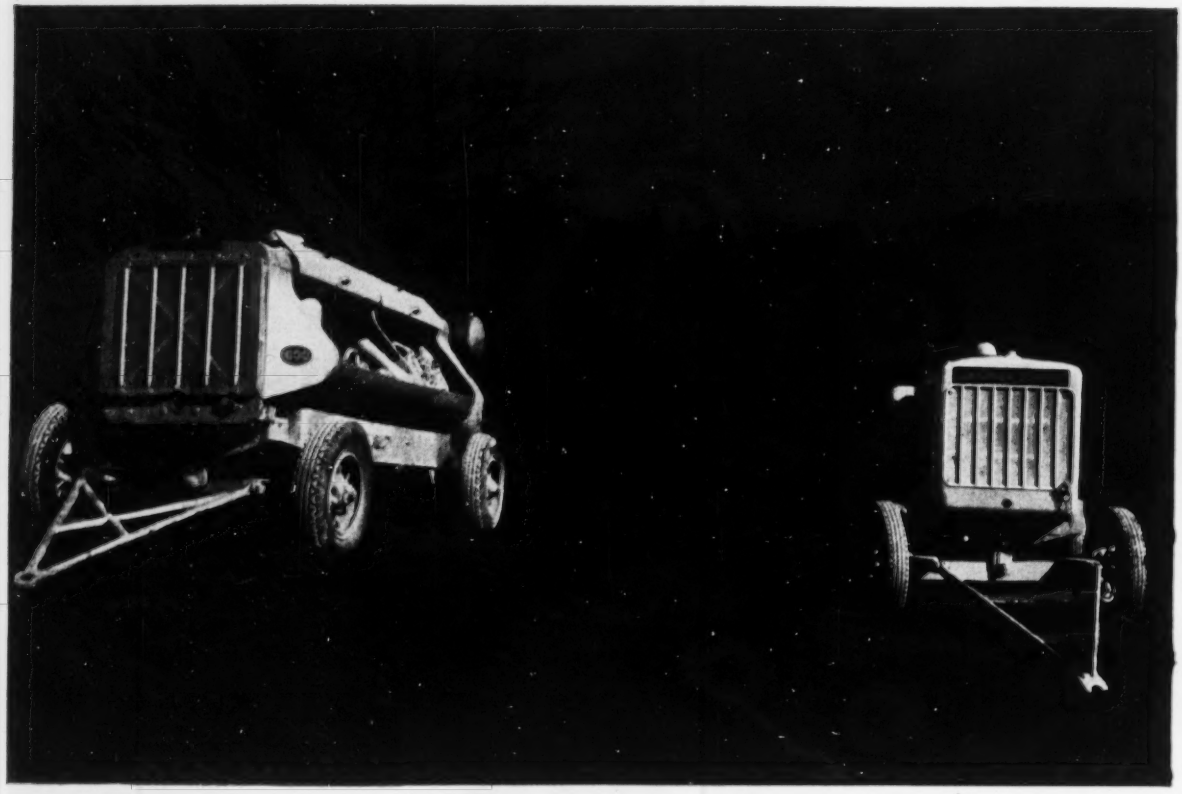
Your Caterpillar Dealer has the right equipment for your job, and he'll back its rugged stamina and long work life with reliable service and genuine Caterpillar parts. He's as close as your phone. Call him today.

▲ ROLLING at 20 mph., a Cat DW21-Scraper unit hauls big loads fast for building an entrance road.

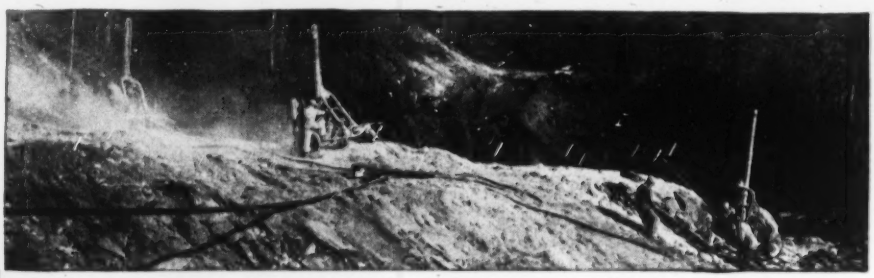
▼ A CATERPILLAR D8 Tractor pulls this Woods mixer, laying crushed shell and sand for a runway.



CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS



when the going's like this ...make it *all* GARDNER-DENVER



Gardner-Denver Portables for dependability, without pampering.

Gardner-Denver Wagon Drills for quick spotting and fast drilling.

Gardner-Denver Sinkers for power and more power in every weight class.

Send for descriptive bulletins.

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THE QUALITY LEADER IN COMPRESSORS, PUMPS AND ROCK DRILLS

UNDERGROUND GENERATOR ROOM of the Harspranget hydro-electric project in Sweden. Cut from solid rock, 200 ft below one end of the dam, the chamber is 330 ft long and 60 ft wide.

Big underground powerplant put in service in Sweden

Last year the Swedish State Power Board put into service its big Harspranget Dam and power plant on the Stora Lulealv River, some 30 miles inside the Arctic Circle (ENR Jan. 18, 1951, p. 47). The power plant is of the underground type. It is located almost directly under the left end of the dam in a region where the rock is granite and free of fault zones. From the plant a tailrace tunnel 43 ft wide and 72 ft high extends 1.8 miles to the river downstream from the dam.

The power-plant chamber is believed to be second in size only to the one now being built for the Kemano project in British Columbia, which is to be 80 ft wide, 135 ft high (to the bottom of the draft tubes) and 700 ft long for the initial development. The chamber at Harspranget is 60 ft wide, 330 ft long and 141 ft high above the bottom of the draft tubes.

Unlike the Kemano plant chamber (ENR Nov. 13, 1952, p. 31), this one is unlined except for gunite on the roof. In excavating the chamber, a top heading was enlarged to the full width of the room. When the arch roof was fully exposed, 1-in. diam bars, spaced one to every square meter of area were sunk to a depth of three to five meters and grouted in place to act as anchors for the surface rods. Then semicircular concrete pipes were attached to the rock surface to act as drains running to the side walls, and the whole surface was gunited, using the unexcavated rock below the top heading as a working platform. Then the remainder of the chamber was excavated.

So far there has been no trouble with leakage from the roof, but if trouble does develop, provision has been made for adding a concrete-arch ceiling.

The lighting arrangement shown in the accompanying photograph was selected to take away any impression of narrowness in the room, according to G. Westerberg, chief director of the power board.

Three generating units of 96,000-kw capacity have been installed in the chamber, and space is provided for a fourth.

A similar underground power station now is nearing completion for the Kilforsen project of the power board.

Gifts of cement aid Pan-American highway

Concern over the condition of the Pan American Highway in northern Panama has created a spontaneous movement among private interests to donate materials for its improvement. From Panama City to Rio Hato, a distance of about 80 mi, the highway is in good condition. But the 220-mi stretch from there to David, a city near the Costa Rican border, is barely passable.

David is in a rich agricultural country, and truckers report that a set of tires lasts only from four to six round trips to Panama City; so ranchers started the movement by donating 500 bags of cement. A local steamship company followed suit with an offer of 2,500 bags, a brewery came through with 3,000 bags, and the local police—along with all employees of local gas and electric utilities—contributed one day's pay for purchase of cement.

Philip Morris Cigaret Co. offered 10,000 bags, each bag obtainable on the presentation to a cement dealer of a certificate given by the company for

MM WHEELERS

- Equipped for your job
- easy to handle
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- large capacity
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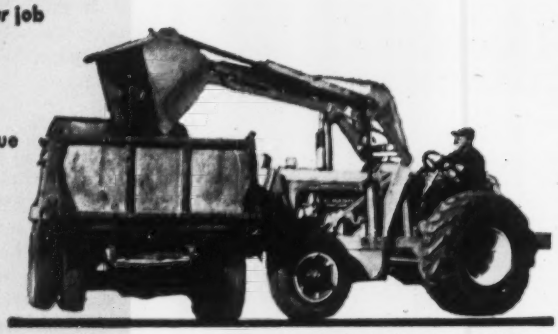
- durable single unit construction
- low in cost
- nearby parts and service



Up and out, with power to spare! Heavy-duty MM Wheelers offer the important advantages of proved conventional design.

Rugged MM WHEELERS

MINNEAPOLIS MOLINE — MODERN MACHINERY

Built and equipped for your heavy jobs!

CONVENTIONAL DESIGN FOR FRONT OR REAR END ATTACHMENTS

You get *more work* out of MM Wheelers with this conventional design that handles a *bigger* variety of attaching equipment. Front and rear mounted equipment makes *both* ends of your Wheeler pay. Practical drawbar applications further reduce machinery investments. MM design combines economy of first cost; fast, easy operation; ability to handle *more* tool types, and real operating safety.

Let your MM distributor demonstrate. See for yourself why MM owners call their Wheeler and equipment combination the "one man contractors."

MORE WORK from more equipment! MM Wheeler owners get all the advantages of design that make both ends pay — like this 3 yd. scraper.

Provisions for rear mounting give you real back-hoe performance. Again, Wheeler design pays off with more work from standard design.

MINNEAPOLIS-MOLINE

MINNEAPOLIS 1, MINNESOTA

every empty Philip Morris cigaret package returned to it. Cemento Panama, S. A., sole manufacturer of cement in Panama is adding two bags of cement for every ten donated.

The movement, just under way, may solve the problem of insufficient funds for the completion of the Pan American Highway to the Costa Rican border. The U.S. pays two thirds of the highway costs, provided Panama supplies the other third.

North Rhodesia approves Kafue River hydroproject

A new power source for Northern Rhodesia's copper fields (producing an eighth of the free world's supply) will be operating by 1961. Plans by British engineers for the Kafue River hydroelectric development have been approved and work is planned to start shortly.

Since 1946 a debate has raged between Northern and Southern Rhodesia on the advisability of constructing hydroelectric facilities at a Southern Rhodesian site on the Zambesi River, or at a northern site on the Kafue River, which runs into the Zambesi (ENR Dec. 20, 1951, p. 51). The argument for the South was that the site on the Zambesi River had a far greater potential, would have to be built sooner or later because the development of the Kafue site wouldn't be adequate ten years hence for industrial and private use in the two countries. The argument of the Kafue side was that their project could be finished faster and initially at a far lower cost per power unit, plus the fact that in ten years the two countries would need both projects.

Plans for the $75-million hydroelectric project in the gorge of the Kafue River envisage two power stations guaranteeing an initial output of 257,000 kw at 80% load factor. By the addition of turbines and the construction of a third plant, the output could go to more than 400,000 kw. The dam itself will be of concrete, 600 ft long at the crest and 100 ft high at a point over the river bed. Drum gates will operate automatically to release flood waters, and a 20-ft dia tunnel will carry the water to the surge shafts at the power stations. Total length of the tunnel is 13½ miles to the lower power station, which is some 1,800 ft below the intake invert at the dam.

Plans for the project are by Sir William Halcrow and Partners, the well-known engineers of London, England.

BOLTED CONSTRUCTION IS FAST... EFFICIENT ...QUIET

Steelwork can be erected quickly, and quietly as well, when Bethlehem High-Strength Steel Bolts are used to join the structural members.

Bethlehem High-Strength Bolts save time because they are so easy to handle. They provide a secure joint, and are used in place of field-driven rivets.

In assembling Bethlehem High-Strength Bolts, a hardened washer is placed under both the head and nut. This permits the development of the high torque required, without scoring the connected material. The hexagonal nuts are driven up on the bolts so tightly that there is no possibility of slip at working loads.

Bethlehem High-Strength Bolts are made from carbon steel, and are produced at our fastener plant at Lebanon, Pa. They are heat treated by quenching and tempering to conform to the requirements of ASTM Specification A 325. Write for full information.

New Booklet Gives Data on High-Strength Bolting

We have a new 8-page booklet, "High-Strength Bolting for Structural Joints." It's chock-full of data on structural bolting, and includes the information that needs to be supplied in ordering high-strength bolts. For your copy, write to us at Bethlehem, Pa.

BETHLEHEM STEEL

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

Bethlehem supplies every type of Fastener

It's the Operators'

BEST BY A DAM SITE. Troy Hood and Jack Rank (shown here with Dirt Foreman Sam Crawford) operate TD-24s for Guy H. James, building the great Oahe Dam in South Dakota. Hood says: "I can keep right behind the scrapers—catch 'em sooner and push 'em out faster because TD-24 controls are easier." And Rank chimes in: "Much easier to handle than any other tractor."

"ALMOST THINKS FOR ITSELF!" That's what Jess Leatherwood says about the Big Red TD-24 he operates for Macon Construction Co., Franklin, N. C. "It pushes more, moves it faster and handles easier than any other crawler I've ever been on."

"WE RIP PLACES YOU'D USUALLY HAVE TO BLAST," says another Macon operator, Roy Cantrell. "We've been working in the Blue Ridge Mountains on rock you couldn't touch with a dozer till the TD-24 came along. Now we blade where we couldn't scratch before, and rip where we used to dynamite!"

"OUR TD-24s REQUIRE LESS SERVICE," says John Tickler, Service Superintendent for John E. Bloomer Construction Co. "These big red machines are very accessible, very easy to maintain. And when we do need help, the International Distributor is always on the job!"

Crawler!

Read what the operators and servicemen say about "Big Red", the International TD-24...

"HOW DO I LIKE 'BIG RED'?" asks George Miller. "Listen: This TD-24 is just the fastest and surest handling tractor there is, that's all! Nothing I've seen can touch it for moving dirt." George and his TD-24 move dirt in North Carolina for Kiker & Yount Construction Co.

"GREATEST THING I'VE SEEN," says Bruce Olson (right), TD-24 operator and Sec.-treas. of G. A. Olson Construction Co., Marshall, Minn. "The TD-24 is the easiest crawler of all to operate. The high-low shift is great for whipping around to the cut after dumping the load. It's the fastest equipment going for anything up to a 3,000-foot cycle!" Man in center is Glen Olson, Bruce's brother and company president. At left is Superintendent Donald Young.

Ask the men who know. Ask the operators. They know that *this* makes "Big Red" the Champ:

TD-24 POWER
148 maximum drawbar horsepower, more than any other crawler on the market.

TD-24 SPEED
Up to 7.8 m.p.h. with 8 forward speeds, 8 reverse. Moves loads faster, gets back quicker for more work-cycles per hour.

TD-24 STEERING
Fingertip control for pivot-turns, feathered-turns and *turns with power on both tracks.*

TD-24 STARTING
Exclusive International push-button starting for quick starts any time in any weather.

Want to know more reasons why the Big Red TD-24 is the work-champ of the world?

Ask your International Industrial Distributor. Ask TD-24 operators. Ask the men who know—and you'll be a TD-24 man yourself from then on in!

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILLINOIS

INTERNATIONAL HARVESTER

INTERNATIONAL

POWER THAT PAYS

a "best-seller" that's *FREE* to Architects and Engineers

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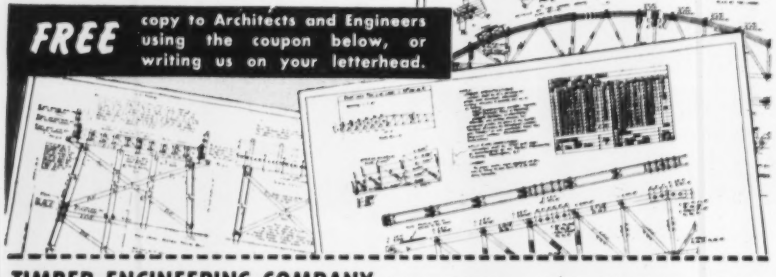
of this helpful book, "Typical Designs of Timber Structures" are at work, suggesting ways of designing and building better wood structures faster, more economically with . . .

TECO WEDGE-FIT CONNECTORS

and *Trip-L-Grip* FRAMING ANCHORS

This 116-page book offers 88 typical designs for light and heavy frame buildings of all types.

FREE copy to Architects and Engineers using the coupon below, or writing us on your letterhead.



TIMBER ENGINEERING COMPANY 1319 18th Street, N.W., Washington 6, D.C.
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Please send me the FREE copy of "Typical Designs of Timber Structures."

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FIRM.....

STREET..... CITY..... Zone..... STATE.....

ENR

New construction projected by Brazil-U. S. commission

Plans of the joint Brazil-United States Economic Development Commission reveal a great deal of new construction for South America's already booming industrial prodigy. Hydroelectric projects, harbors and highways are ticketed for World Bank loans.

• **Rivers and dams**—Brazil has a hydroelectric potential of 20,000,000 hp, putting it in fourth place in the world. The Brazilian government and the Joint Commission are pushing to expand generating capacity in the immediate future by 1,747,000 kw, of which 1,458,400 will be hydro power. Having completed studies of 17 power projects, some consisting of several plants, the World Bank is asked to grant loans of $151 million, Brazil an additional $204 million. The leading hydro-electric project now under construction is the harnessing of the Paolo Afonso falls on the Sao Francisco River where engineers plan to produce 900,000 kw eventually. Planned as a TVA-style project, Paolo Afonso is the first part of the devolopment in the Sao Francisco Valley, rich in varied mineral resources.

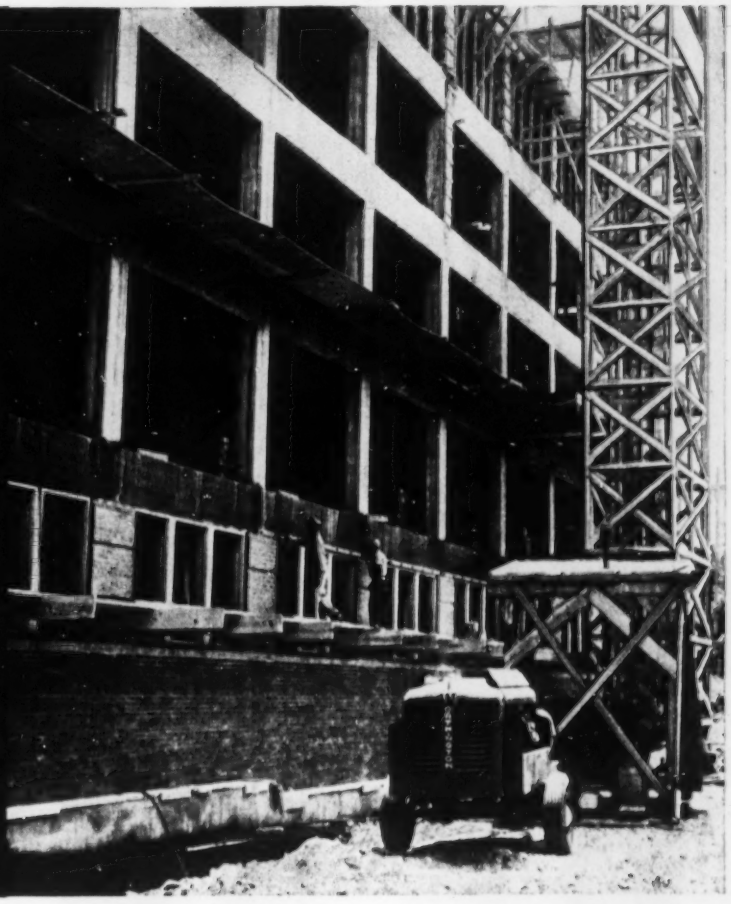
• **Port operations**—The Joint Commission, working with the National Department of Ports, Rivers and Canals, has recommended that the government acquire abroad about eight big dredges to be operated by an autonomous dredging division within the department. Working to break bottlenecks which delay and increase the cost of shipping, the dredges Brazil has now have an annual capacity to move only 5,000,000 cu yd, while at least 27,000,000 cu yd must be dredged at the principal ports alone.

The Brazilian government and the Joint Commission have applied to the World Bank for a $27-million loan to buy the dredging fleet. In a related move the Joint Commission has recommended World Bank loans of some $11 million for pier and warehouse construction. These loans are to be matched by about $37 million for construction by municipal port authorities and private dock operators in Brazil.

As for highways, more miles of road have been built in Brazil in the last six years than previously existed in the whole country. Yet there still are only 45,000 mi of surfaced roads in Brazil's 3,288,045 sq mi. The Joint Commission has drawn up a program calling for $14 million in foreign loans for construction and maintenance equipment. This sum is to be matched by $50 million from Brazil.

"We can depend on our BLUE BRUTES"...

Writes J. E. Dunn, Jr., of the J. E Dunn Construction Company, Kansas City, Mo., about Worthington construction equipment.



WORTHINGTON BLUE BRUTE 105-ft. compressor used by the J. E. Dunn Construction Company in construction of a new addition to the University of Kansas Hospital.

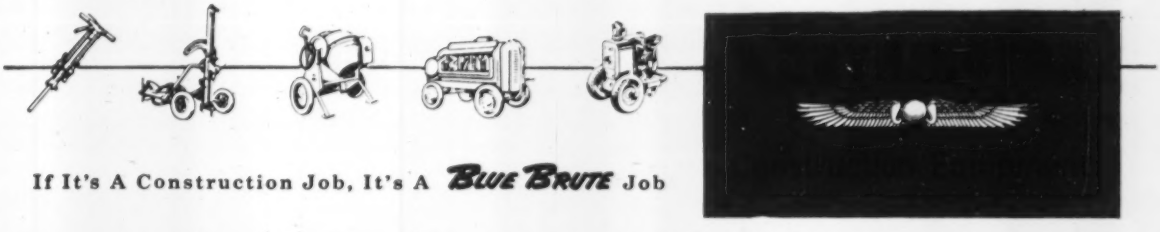
HARD-HITTING BLUE BRUTE breaker at work on the hospital job.

Mr. Dunn goes on to say: "We find that we can depend on our Worthington 105-foot and 60-foot compressors, which we have been using now for approximately 6 years. Maintenance costs of these units have been extremely low.

"We have used the Worthington Blue Brute to power hand-held air tools and kindred equipment on all types of construction jobs. Many of our jobs have been extremely tough, but our superintendents have learned to expect uninterrupted service from these machines and to date they have been getting just that. We believe in using the best machinery we can buy, because we know from our past experience that we get more for our money by buying the best."

Find out how Blue Brutes can step up efficiency on your construction jobs. Contact your nearest Worthington district office or distributor for more facts and bulletins. Or write to Worthington Corporation, Construction Equipment Division, Plainfield, N. J.

H.3.2



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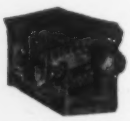

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McGraw-Hill World News photos

Section of 240-ft tanker on the Autobahn. Curved stern of tanker is supported on rear trailer by rectangular bracket bolted to hull plate.

Trucks move boats in Western Germany

German engineers have been hampered and handicapped due to political difficulties—to haul river tankers on trailers over highways from the Danube to the Rhine River. In the last two and a half years 24 tankers, totaling 22,000 tons, have been hauled across Austria and Germany by cutting them into sections and putting them on the heavy transport trailers of the German State Railroad.

Reason for carting the tankers to the Rhine is that the Danube freight fleet has been bottled up and idle since the fall of the Iron Curtain in Eastern Europe, in 1945. With the advent of the Korean war in 1950 a number of tankers were needed on the Rhine, and the owners of the Danube fleet needed the business.

The problem of ship transport was old stuff to the Germans: during the war they had hauled 400 vessels from the Elbe to the Danube. In those days highways were comparatively new and time was short, so tankers were hauled without taking them apart. But the present condition of highways in Germany is very poor now, and the tanker must be cut up into smaller sections weighing no more than 50 tons.

The transport trailers have a capacity of 40 to 60 tons and are so constructed that the compressive load on the highway does not exceed design specifications. River-to-river transport takes approximately twelve weeks time, much of which is used up in taking the all riveted tankers apart and putting them together again. The actual travel time over land is remarkable and takes only from two to three days.

Rear guide on stern trailer gets instructions for steering boom via earphones. Rectangular support bracket is at left.

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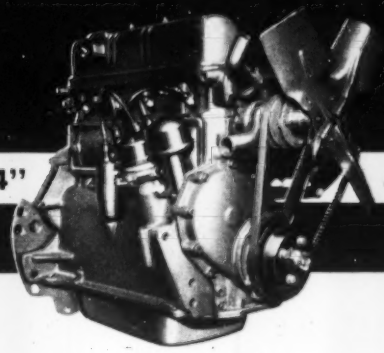


FORD "134" 4-CYL., O.H.V.

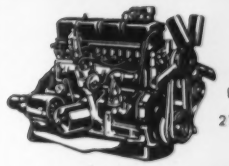
Ford's Overhead Valve Industrial Engines have been thoroughly tested and highly accepted for industrial applications in the field, and now a 4-cylinder power plant of the same type is being offered. This Ford "134" cu. inch engine incorporates notable advancements for still greater performance and operating economy. **Bore:** 3.4375 in. **Stroke:** 3.6 in. **Rating** (dyn.): 45 b.h.p. @ 2400 rpm.

Manufacturers of powered equipment throughout the U.S.A. are constantly in search of economical power to speed productive activities and increase profits.

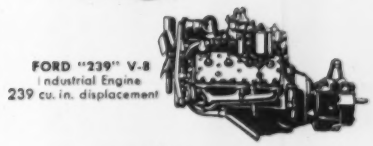
Because of its efficient mass production methods and nationwide service facilities, the Ford Motor Company is a popular source of economical, low-cost Industrial Power. *Here* on this page are the engines which Ford has designed and built to its famous Hi-Precision standards *especially* for the needs of Industry.

You'll find these Heavy Duty Engines at work today powering equipment in our vast oil fields, on our farms and in factories, around logging camps, sawmills, road building and huge construction projects.

If you're interested in any of the engine series shown, one of Ford's Staff of Sales Engineers will be glad to discuss your power problem and perhaps help you solve it advantageously.

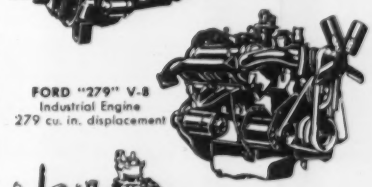


FORD "215" 6 cyl.
Industrial Engine
215 cu. in. displacement



FORD "239" V-8
Industrial Engine
239 cu. in. displacement

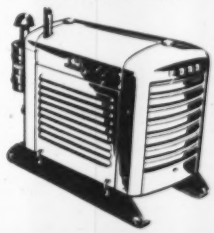
FORD "254" 6 cyl.
Industrial Engine
254 cu. in. displacement



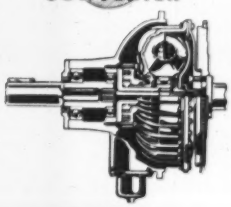
FORD "279" V-8
Industrial Engine
279 cu. in. displacement

FORD "317" V-8
Industrial Engine
317 cu. in. displacement

TYPICAL FORD CLOSED TYPE POWER UNIT



FORD MULTA TORQUE CONVERTER



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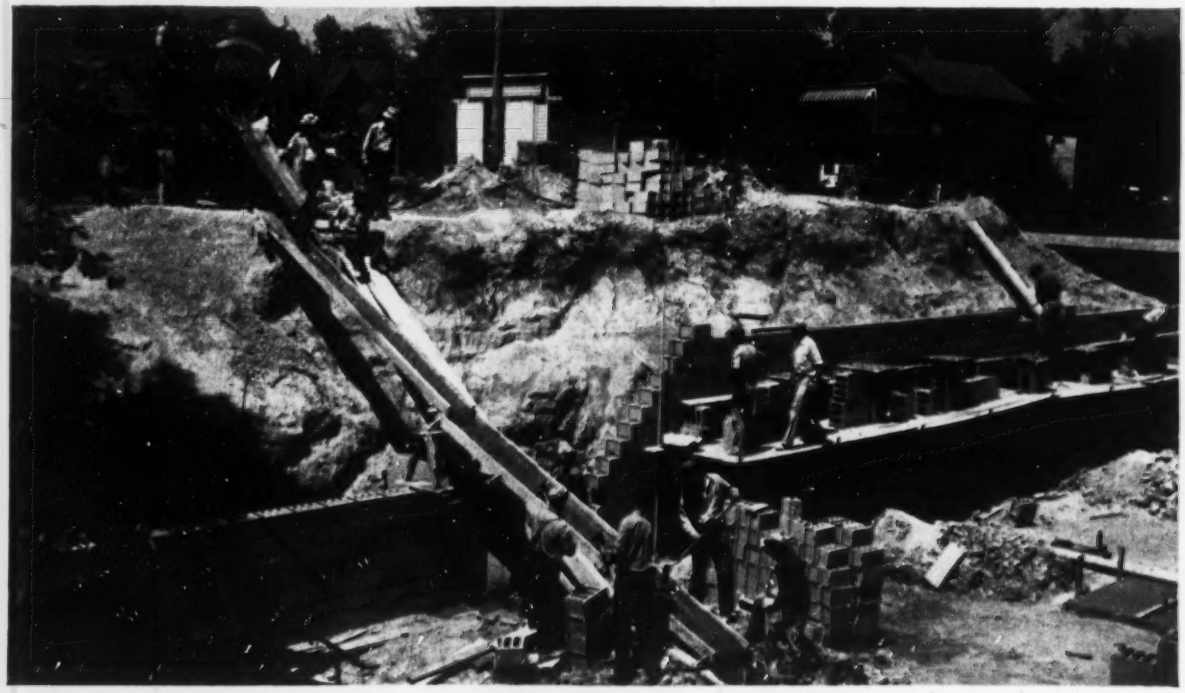

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Consider how your operation will benefit by using Dowflake. Wherever it is necessary to convey concrete by chute, the concrete flows rapidly, requires little hand labor to keep it moving at turns or blockades. The mixer and chutes require much less cleaning after the job is completed.

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International briefs . . .

• **Puerto Rico wants atomic power**—Governor Luis Marin of Puerto Rico has asked the Atomic Energy Commission to consider placing on his fuel-short island one of its projected pioneer atomic power plants. Gordon Dean, chairman of the commission, said that his group's research division, studying the establishment of pioneer power plants in fuel short areas, has been instructed to include Puerto Rico in its study.

• **Wells for India**—Three states of northern India have signed contracts with Harold T. Smith, Inc., of Washington, D. C., for the drilling of 300 irrigation wells. The wells are part of 2,000 "bored" wells provided for in the Indo-American Point 4 program, and will deliver 750 gallons per minute each from an approximate depth of 200 to 400 ft.

• **Paper mills abroad**—Parsons & Whittemore, Inc., New York, is launching an extensive program to design and build pulp and paper mills in South and Central America, Africa and Asia. The program, carried out in conjunction with other paper and machinery companies here and in England, is designed to use as much local help, machinery, and ultimate financing as possible.

• **Uganda hydro operating**—Owen Falls river storage and hydro-electric project on the headwaters of the Nile just below Lake Victoria, is now better than half way completed. At the pressing of a button Uganda's Governor diverted the Nile so that work could start immediately on the eastern half of the dam, the western half already having been completed (ENR Apr. 21, 1949, p. 30 and Nov. 10, 1949, p. 46).

• **Israel developments**—Work will start in about four months on a 300-bed hospital in Ramat-Gan (pop. 15,000) north of Tel-Aviv. The $3-million project will be built by an organization of progressive physicians and business men, most of them recent immigrants. Three representatives of the group are presently enroute to the U. S. to arrange for additional financing.

A private Israeli company, backed by the U. S. and other interests has obtained a 25-year concession from the Jewish National Fund to exploit the new product Bozolin, described as a cement-like product used for underwater construction.

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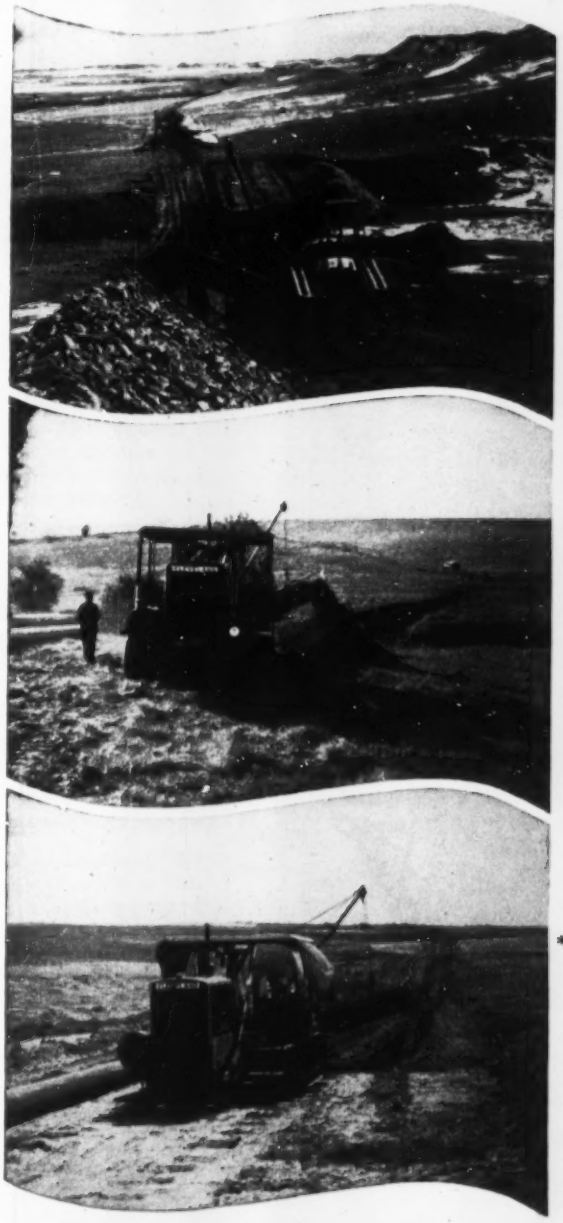

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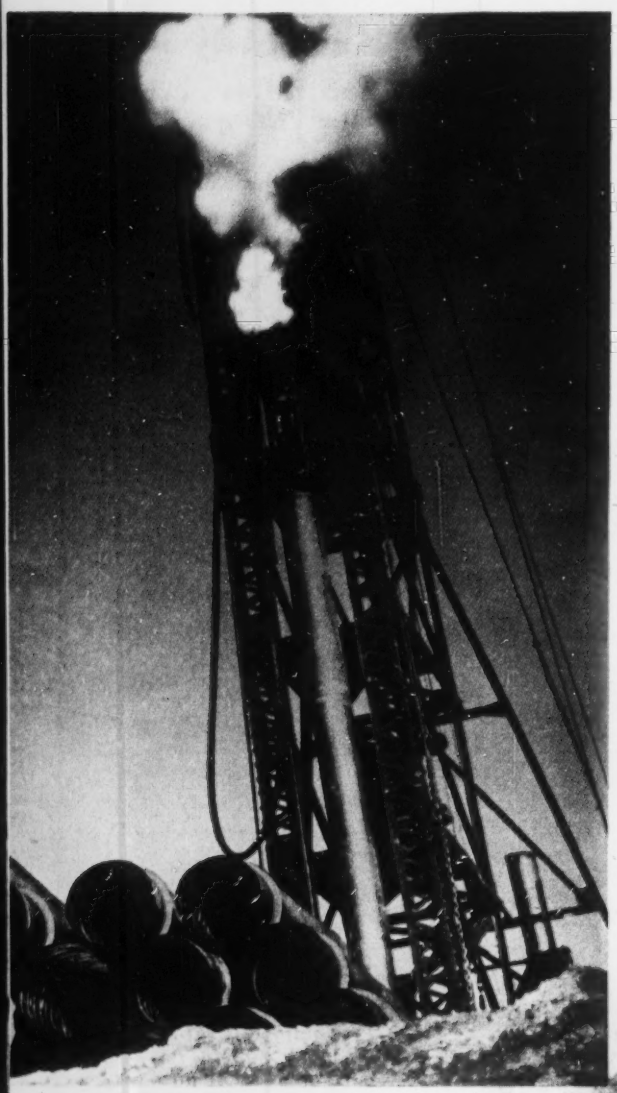

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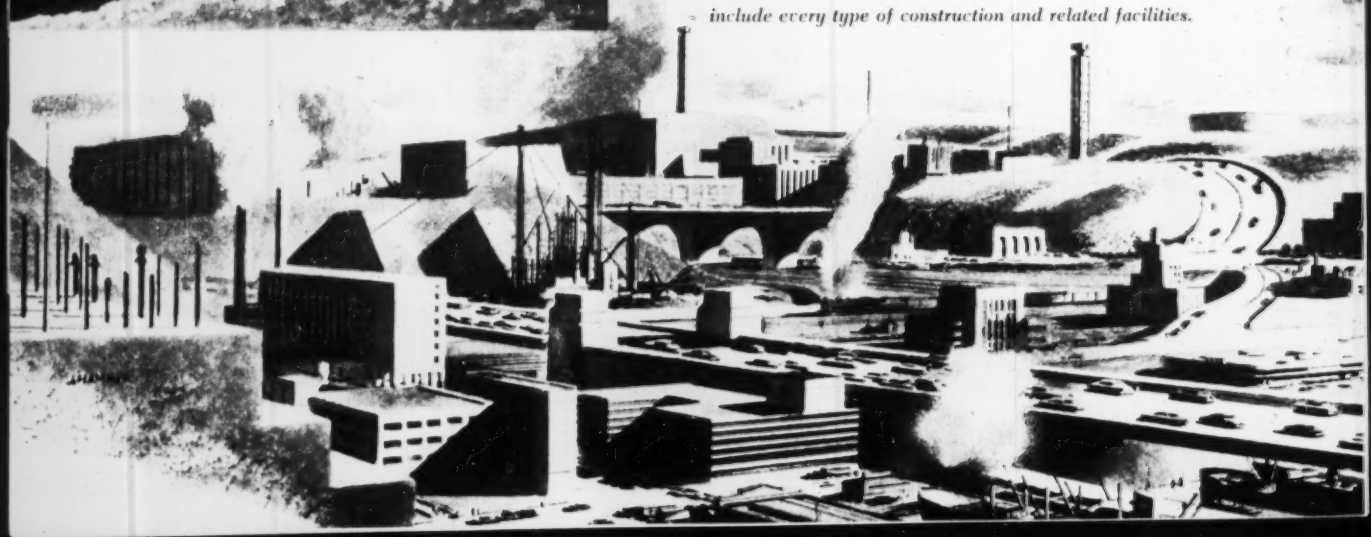

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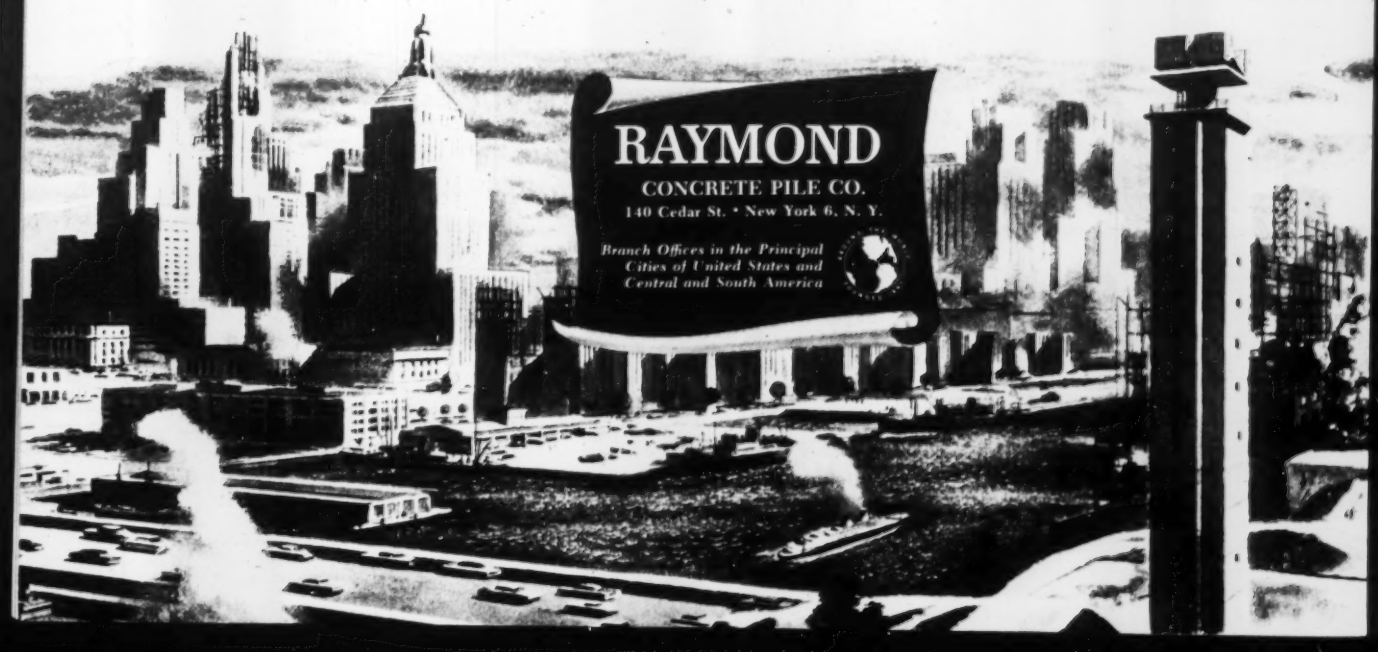
Wyandotte Chemical
Youngstown Sheet & Tube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Formula for tapered timber columns

The usual design specification for round, tapered, timber columns requires that the diameter used in strength calculations be measured at a point located one third the length from the small end of the column. One of the most common applications is timber piling designed as structural columns.

The design of long, round timber columns is commonly dependent upon the Euler formula as applied to a square column of the same cross-sectional area, utilizing, of course, an appropriate safety factor of at least 2.5 to insure against elastic buckling of the member.

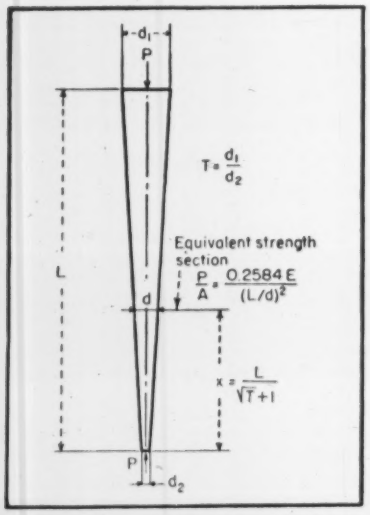
The derivation of the Euler or buckling load for a round column of constant taper, with hinged ends, yields the equation:

$$P = \frac{\pi^2 E I T^2}{L^2} \qquad \ldots\ldots\ldots\ldots\ldots\ldots (1),$$

in which P is the buckling load, E is the modulus of elasticity, I is the moment of inertia at the small end of the column, L is the length of the member, and T is the taper factor. The taper factor T is the ratio of end diameters; the large to the small. For a column of uniform diameter throughout its length, the taper factor is one, and Equation 1 takes the form:

$$P = \frac{\pi^2 E I}{L^2} \qquad \ldots\ldots\ldots\ldots\ldots\ldots (2).$$

Equation 2, the usual Euler equation, therefore, becomes a special case of the more general Equation 1.



LOCATION of equivalent strength section for round tapered timber columns.

Equations 1 and 2 may now be used to locate a point along the length of the tapered column for which an equivalent column of uniform cross section will give equal buckling resistance.

If x is the distance of this point from the small end,

$$x = \frac{L}{\sqrt{T}+1} \qquad \ldots\ldots\ldots\ldots\ldots\ldots (3)$$

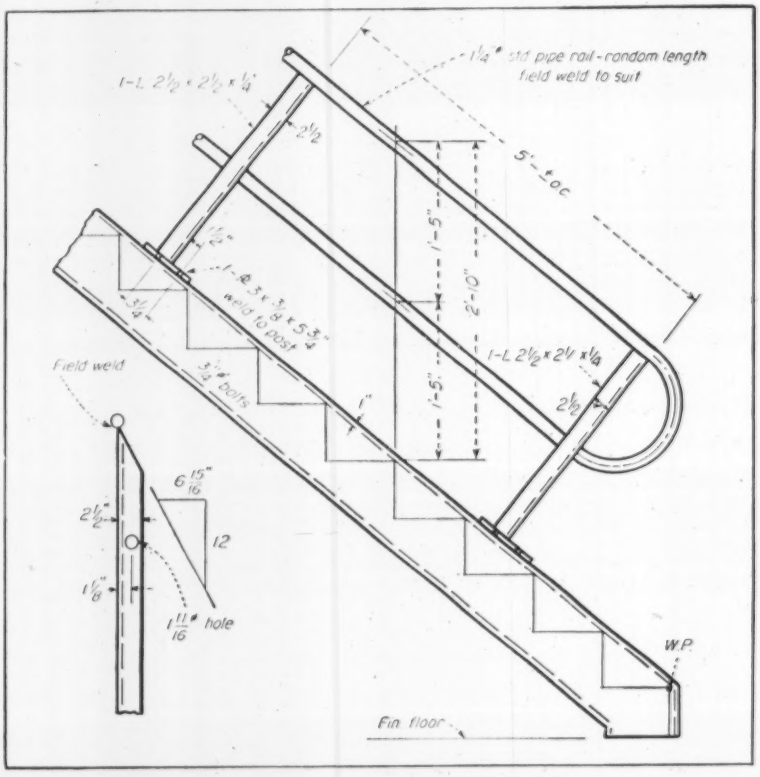
If, in accordance with the specification, x is taken as $L/3$, T must be equal to 4, which is a specific ratio of diameters of the large end to that of the small end. For taper factors T smaller than 4, the specification is unduly conservative and uneconomical, whereas for ratios larger than 4, it is unsafe.

It is proposed, therefore, that Equation 3 be used for determining the point along the length of the tapered column at which the diameter d of the section and the area A should be determined. Then, equating the strength of a square cross section to that of the round one of equivalent area, and introducing a factor of safety of 2.5, the proposed design formula becomes:

$$\text{Allowable unit stress} = \frac{P}{A}$$

$$= \frac{0.2584\,E}{(L/d)^2} \qquad \ldots\ldots\ldots\ldots\ldots\ldots (4),$$

in which A and d are calculated for the section first located by equation 3.—E. I. Fiesenheiser, professor of civil engineering, Illinois Institute of Technology, Chicago.



Stair hand rail designed for simple fabrication

A stair handrail for general industrial use that can be erected from random pipe lengths in the field at a saving in cost over custom-built types is shown above.

Handrails for industrial installations usually are disproportionately costly because of detailing charges, extra field work due to poor fit, and other requirements to meet safety standards. In the rail shown, angle posts are fabricated by a steel company and erected at the time other structural steel is erected. Pipe rail and toeplates of random lengths are field welded.

This type of railing has been installed in many plants in the Niagara Frontier for the past several years with success.—G. Harold Klein, Engineer, Niagara Falls, N. Y.

YOU can stop costly sewage corrosion before it starts, increase the working life of your sewage treating tanks and equipment, and cut maintenance costs to a minimum when you protect with Pitt Chem Tar Base Coatings.

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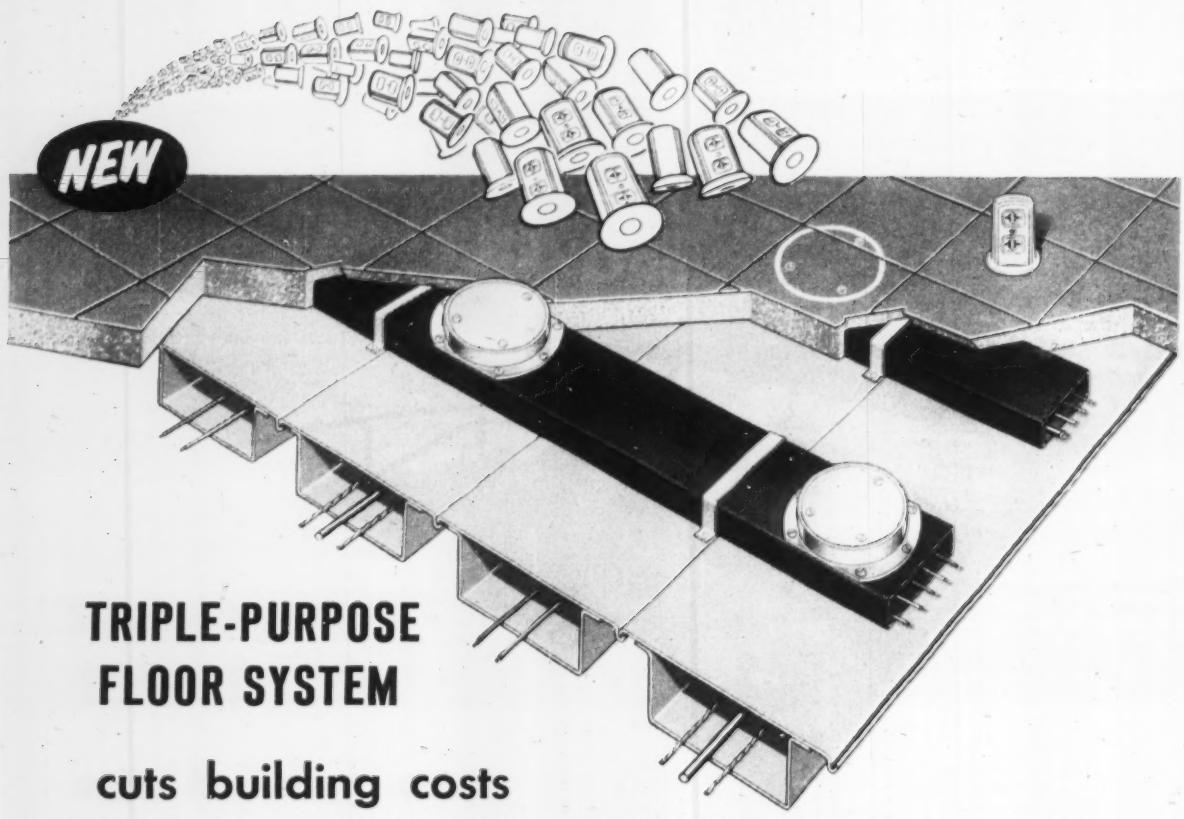
Tells where tar base coatings can save you money in your plant . . . what grades to use . . . how to apply them.

PITTSBURGH
COKE & CHEMICAL CO.

COAL CHEMICALS • AGRICULTURAL CHEMICALS • FINE CHEMICALS • PROTECTIVE COATINGS • PLASTICIZERS • ACTIVATED CARBON • COKE • CEMENT • PIG IRON



TRIPLE-PURPOSE FLOOR SYSTEM

cuts building costs

and gives you unlimited electrical outlets!

What Fenestra-Nepco Electrifloor is

It's structural unit, electrical system, and subfloor, all in one package! Long-span, load-rated light-weight cellular steel panels are locked together to form a tremendously strong subfloor (three men, two laying panels and the third spot-welding them, can lay over 100 square feet of floor in less than an hour). Electrical header duct is then strapped on top of the panels and wires fed through the panel cells which form smooth, clean, closed raceways.

What it does

Load-rated Electrifloor saves structural steel by decreasing the dead weight of your entire building. As a result, foundations can also be much less massive. The building is ready for occupancy months sooner—as the frame goes up the floors go in and form working platforms. No scaffolds, no *delays*. And because of Electrifloor's design, your building will resist winds, earthquakes and bomb shock.

Your building will *never* be electrically obsolete . . . you can have outlets anywhere on the floor . . . any time. You can change outlets as you wish without disrupting your business. You move electrical equipment from one room to another, from one floor to another, without expensive electrical alterations. You can move partitions—change your whole office layout. All you do to add an outlet is drill down and pull wires up. You do not need to channel through a concrete floor slab to lay your wiring.

Electrifloor has been fully tested and approved by Underwriters' Laboratories, Inc.

Who developed Electrifloor

Two great names combined experience and products to give you load-rated Electrifloor. Fenestra*—long a leading manufacturer of metal building panels. National Electric Products Company (Nepco)—long a leading manufacturer of electrical wiring equipment.

Engineers of both concerns are ready to work with your architects, engineers and contractors.

Write us today

Let us send you the facts on the City-County Building in Detroit, a new Electrifloor installation. And ask for your free book on Fenestra-Nepco Electrifloor.

Write Detroit Steel Products Company, Dept. ER-3, 2286 East Grand Boulevard, Detroit 11, Michigan.

*Trademark

Electrifloor a *Fenestra* Nepco product

OBITUARIES

Warren W. Prim, 49, for seven years structural engineer and general manager of the structural division of the Savannah Machine and Foundry Co., died March 1 as the result of an automobile accident near Savannah, Ga. He attended Drexel Institute of Technology and was first employed by the Lukens Steel Co., Coatesville, Pa. Later he worked for Austin Brothers Bridge Co., Atlanta, Ga., and Steel Products Co. of Savannah.

Olin A. Warren, 56, of Robson & Woese, consulting engineering firm in Syracuse, N. Y., died March 10. After working on air base construction in North Africa during the war, Mr. Warren joined the company in 1945. He was a 1920 graduate of the Lyman O. Smith college of applied science at Syracuse University.

Robert Collyer Noerr, 79, died March 10 at Hartford, Conn. A consulting engineer, he designed many important industrial buildings, among them the factories of the Gray Manufacturing Co. and Arrow-Hart and Hagemann Co. In the early 1920's he designed a solarium attached to the surgical ward of Hartford Hospital. He was graduated from Lehigh University in 1897. Following graduation he worked for a steel company and a bridge company. In 1910 he went to Hartford and established a consulting engineering partnership with the late Albert H. Greenwood. He retired from active work in 1939.

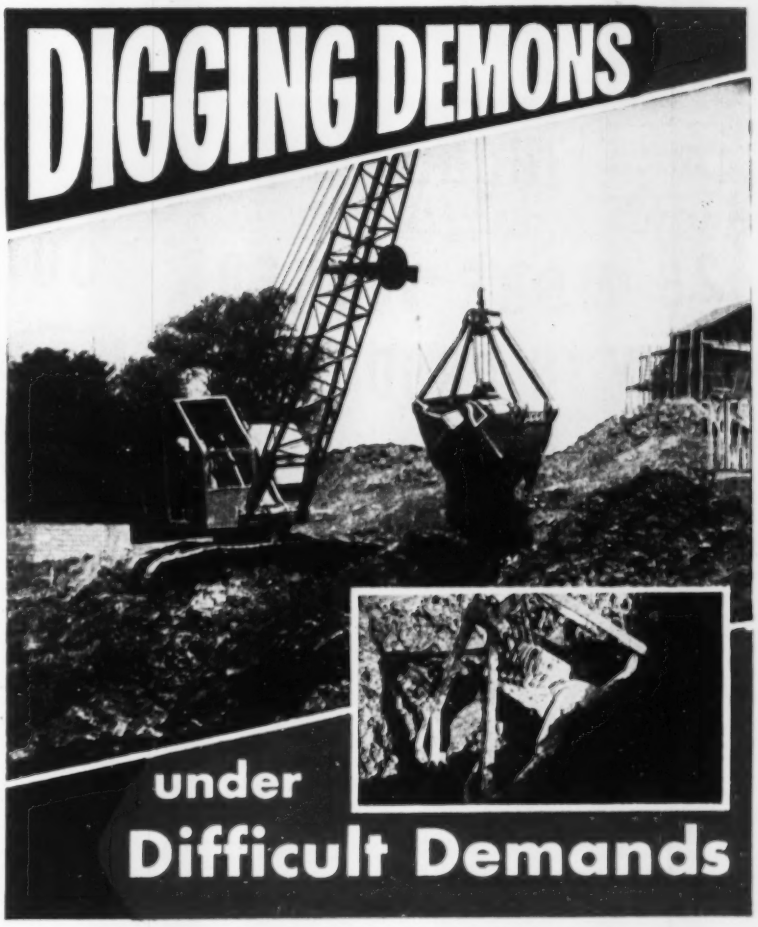
John J. Youngberg, 58, civil engineer for Fred E. Hess, Inc., Fort Worth, Tex., died March 6.

Archibald R. McGlashan, 62, a subcontractor in construction of the Peace Bridge between Buffalo, N. Y., and Ontario, died Feb. 28, in Ft. Erie, Ont., where he had operated his own construction business. He was in charge of many road building jobs in southern Ontario. He also was a subcontractor in construction of the Detroit Tunnel.

Iver N. Peterson, Sr., 75, retired chief engineer of the marine department of the Gulf Oil Corp., died at Beaumont, Tex., March 1.

John F. Casey, president of John F. Casey Contracting Co., Pittsburgh, Pa., died March 4. He was son of the late John F. Casey, founder of the firm. He was a veteran of both world

(Continued on page 95)



The exceptional "DIG-ABILITY" of Owen Buckets has been acclaimed by crane operators and construction contractors alike since the first Owen was manufactured.

Proof of this is evidenced in the predominance of Owen Buckets seen in operation everywhere on large and small construction projects.

Write for the Owen Catalog and complete information on the line which includes an ideal bucket for every digging, handling or rehandling job.

BUCKETS AND GRAPPLES
Write for Catalog

THE OWEN BUCKET CO.

HYDRAULICS FOR MOBILE EQUIPMENT

VOL. 1

Mobile Equipment News

VICKERS INCORPORATED, DETROIT, MICHIGAN

IMPROVES PERFORMANCE • CUTS COSTS

NO. 3

26 MORE VICKERS DOUBLE PUMPS NOW IN PRODUCTION

OFFER MANY REAL BENEFITS WHEN TWO HYDRAULIC CIRCUITS ARE USED ON MOBILE EQUIPMENT

These double pumps are becoming increasingly popular wherever two machine components must operate simultaneously at different speeds and/or operating pressures. They also prevent all possible chance of one operation interfering with another.

TWO PUMPS IN TANDEM

These are essentially two pumps in a single housing and driven by a common shaft. Independent pressure control must be provided as there is a separate pressure outlet for each pump.

LONGER PUMP LIFE RESULTS FROM HYDRAULIC BALANCE

Like Vickers Vane Type Single Pumps, these double pumps have the exclusive Vickers "Hydraulic Balance" that eliminates pressure-induced bearing loads and results in longer pump life.

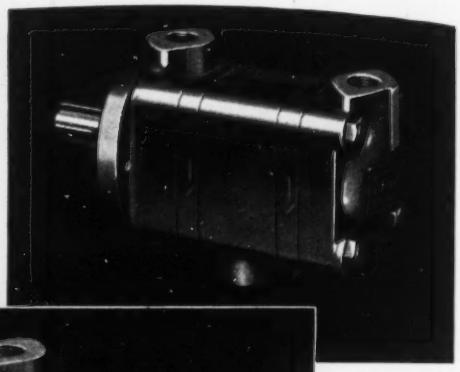
NO-LOAD STARTING

At rest and normal starting speeds, the sliding vanes are retracted; only after engine fires do vanes extend and pumping begin.

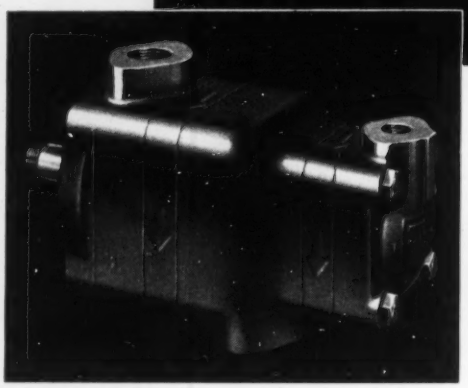
COMPACT AND EASILY INSTALLED

Greater mounting adaptability because of minimum space requirement, 3 mounting styles, optional and independent piping connection positions, shaft drive in either direction.

ASK FOR NEW BULLETIN M-5101



(Right) Series V-2200 Double Pump in 10 sizes from 3.2 to 32.6 gpm combined delivery.



(Left) Series V-3200 Double Pump in 16 sizes from 11.9 to 51.1 gpm combined delivery.

TOP PERFORMANCE THROUGHOUT PUMP LIFE BECAUSE OF AUTOMATIC WEAR COMPENSATION

Radial compensation for normal wear and temperature differentials is provided by the movement of the vanes in the rotor slots. (Wear is minimized because all parts are lubricated by the oil under pressure.)

Axial compensation is by means of a pressure plate held to optimum running clearance by pressure from the system.

Automatic compensation eliminates need for "run in" . . . efficiency is maximum the first time the pump is started. It also assures maximum delivery over a very long life and with wide oil temperature change.

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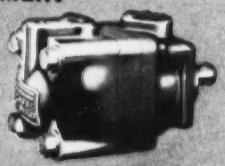
6230

OTHER VICKERS DOUBLE PUMPS FOR MOBILE EQUIPMENT

(Left) Series V-4200 Double Pump in 6 sizes from 30.7 to 70.2 gpm combined delivery.



(Right) Series V-5200 Double Pump in 6 sizes from 48.8 to 89.4 gpm combined delivery.

ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921

wars. His firm has built bridges, roads, tunnels, along with many industrial plants, in the western parts of Pennsylvania.

Frank S. Partridge, 65, superintendent of construction for the Oklahoma Gas and Electric Co. for more than 30 years, died in Oklahoma City March 2. Retired from the company five months ago, he had directed the construction of all but one of OG&E's seven major power plants. His last project prior to his retirement was the 110,000-kw Mustang generating station near Oklahoma City, which was completed in 1950. He entered the construction business as a pile driver for a Chicago firm and later helped build bridges and dams in that area. He became construction superintendent for OG&E in 1919.

Jesse E. Schultz, 59, Madison, Wis., paving contractor, died there March 7. He was the inventor of the Badger earthmover, said to be the first mechanical earthmover developed commercially. He was president of Rein and Schultz, Inc., bituminous paving firm; president of Schultz and Thronson, a grading contracting firm, and secretary of the Wisconsin Bituminous Association. A graduate of the University of Wisconsin, he was employed by the Wisconsin state highway department for several years before going into private business in 1926.

P. A. Roberts, 58, of Lumberton, N. C., former city manager of Gastonia, N. C., died March 3. Prior to serving as city manager, he was assistant city manager and consulting engineer, and before that was in the general contracting business at Lumberton.

Henry E. Mecredy, 69, resident engineer of the Virginia Department of Highways, died at Roanoke, Va., March 4. A 1906 graduate of Virginia Military Institute, he had been an assistant professor of mathematics and engineering there during the years of 1907-08. He had also been with the Works Project Administration in Virginia for several years.

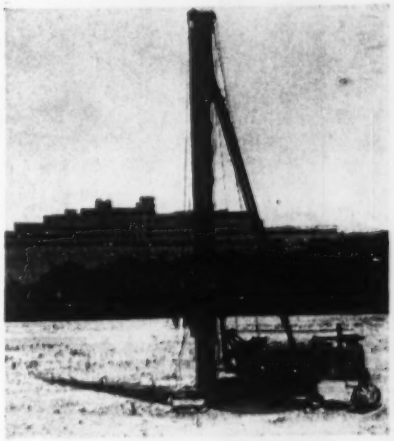
William W. Wells, 51, division engineering chief of the Atomic Energy Commission's Portsmouth, Ohio, area, died recently. Since last August he had been in charge of construction, power, engineering, and supply branches of the $1,219,000,000-atomic plant program in Pike County, Ohio.

HOW FRANKI FOUNDATION COMPANY Saved Greater Pittsburgh Airport More than $7,000

On foundations for two hangars at the Greater Pittsburgh Airport, Coraopolis Heights, Pennsylvania, it was necessary to install the foundations in boulder-loaded fill. Open caissons and pile clusters were considered for picking up the column loads of 110 design tons.

When the bids were opened, the officials of the County of Allegheny, Pennsylvania, found that Franki Pressure Injected Spread Footings assured a savings of more than $7,000 below the next lowest bidder.

JOHN B. SWEENEY, Director of Aviation
E. G. MESSNER, Chief Engineer
LELAND W. COOK, Consulting Engineer
JOSEPH HOOVER, Architect

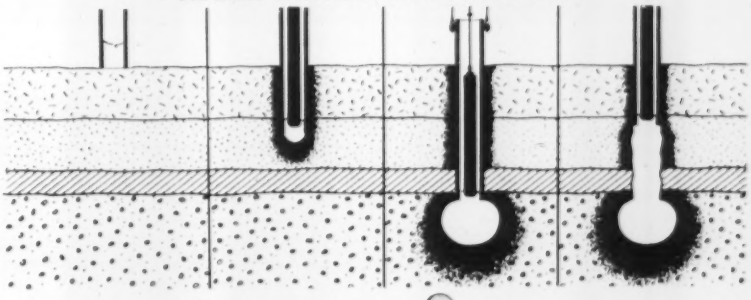


Hangar foundation at Greater Pittsburgh Airport. Franki Pressure Injected Spread Footings from 12 to 40 feet in depth.

. . . LIGHTEN YOUR COSTS . . . INCREASE YOUR LOAD! . . .

Send for "Franki Facts" for complete information about the Greater Pittsburgh Airport project—and an illustrated booklet describing the Franki Foundation method in complete detail. Write Franki Foundation Company, 114 East Fortieth Street, New York.

FRANKI INSTALLATION PROCEDURE

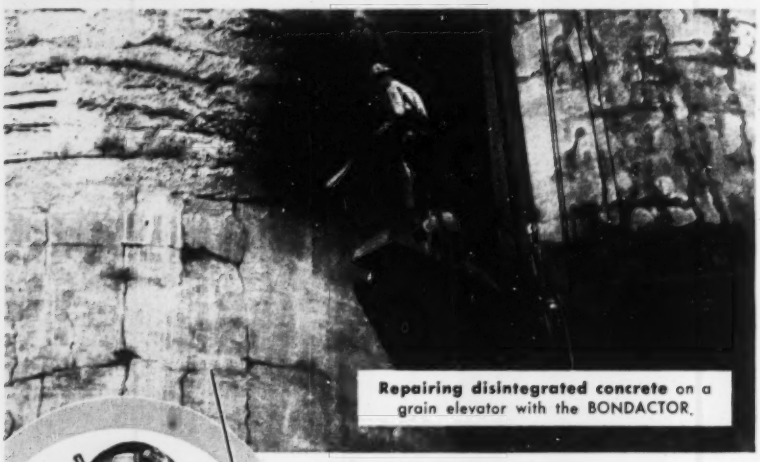


FRANKI FOUNDATION COMPANY

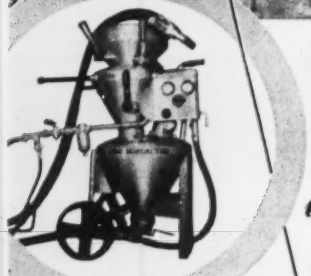
PITTSBURGH, PA.
NEW YORK, N. Y.

FIRM FOUNDATIONS FOR OVER FORTY YEARS

ANOTHER BONDACTOR APPLICATION



Repairing disintegrated concrete on a grain elevator with the BONDACTOR.



Make More Money on Concrete Repairs *with the* BONDACTOR

Make repair and restoration of disintegrated concrete one of your most profitable operations. With the BONDACTOR you can complete such jobs faster, easier and make more money than ever before.

The BONDACTOR guns concrete and many prepared masonry and cementitious materials into the old surface so that perfect cohesion and a bonding action takes place. Bondacted repairs are generally stronger and longer-lasting than the original structure.

Whenever "gunned" concrete is needed, you can do it faster, cheaper with the BONDACTOR.

Other Profit-Making BONDACTOR Uses

Just a few of the new construction and repair jobs that the BONDACTOR does better: Concrete Wall and Roof Fabrication • Stuccoing • Waterproofing • Insulating • Fireproofing • Refractory Linings • Sandblasting.

3 BONDACTORS Available

Model 750 — Capacity: ½—¾ cu. yd. per hr. Operates with 75 or 105 CFM compressor

Model 1250-S — Capacity: ¾—1½ cu. yds. per hr. Operates with 105 CFM compressor.

Model 1250-L — Capacity: 1½—3 cu. yds. per hr. Operates with 210 CFM compressor. Capacities vary with material being gunned and with specific operating conditions.

Write Today for Full Information

State intended use and materials to be gunned.

AIR PLACEMENT EQUIPMENT COMPANY

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Drilling

CORE BORINGS for Foundations, Dams, Bridges and all Heavy Structures GROUT HOLES

Tinney Drilling Co.
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LEGAL

Contractor may recover damages for subcontractor

A general contractor brought an action on behalf of itself and on behalf of its subcontractor, to recover damages resulting from delays caused by correcting defects in the work resulting from faulty plans and specifications.[1] The court held that while the prime contractor had the right to recover for the damages it sustained, the subcontractor had no such cause of action since no contractual relationship existed between the government for which the work was being done and the subcontractor. The court however held, that the prime contractor could include in the damages that it was entitled to recover, those that were sustained by its subcontractor. As to this phase of the litigation, the court in its opinion stated:

"A prime contractor's contract with the government has been recognized as being sufficient to sustain an action by the prime contractor for the extra costs incurred by his subcontractor as a result of wrongful conduct of the government. The Supreme Court, in United States v. Blair, said: 'Respondent was the only person legally bound to perform his contract with the government and he had the undoubted right to recover from the government the contract price for the tile, terrazzo, marble, and soapstone work whether that work was performed personally or through another. This necessarily implies the right to recover extra costs and services wrongfully demanded of respondent under the contract, regardless of whether such costs were incurred or such services were performed personally or through a subcontractor. Respondent's contract with the government is thus sufficient to sustain an action for extra costs wrongfully demanded under the contract.'"

The court in its opinion, further stated: "This conclusion is not contrary to the decisions of this court in Nils P. Severin v. United States, 99 Ct. Cl. 435, certiorari denied, 322 U.S. 733, 64 S.Ct. 1045, 88 L.Ed. 1567; James Stewart & Co., Inc. v. United States, 63 F.Supp. 653, 105 Ct. Cl. 284; Continental Illinois National Bank, 101 F. Supp. 755, 121 Ct. El. 203, certiorari denied, 343 U.S. 963, 72 S.Ct. 1057. In these cases the subcontracts contained clauses absolving the prime contractor from liability to the subcontractor for

(Continued on page 100)

THE ENGINEER'S REPORT

DATA

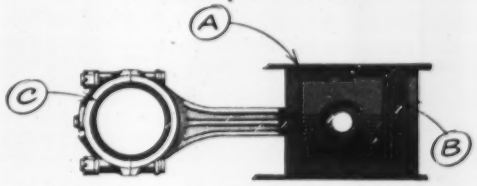
LUBRICANT	RPM Delo Oils
UNITS	Allis-Chalmers HD 20's & 19's
OPERATION	Clearing timber land for reservoir
CONDITIONS	Heavy pulling and bulldozing
FIRM	Paul C. Helmick Co., Seattle, Wash.

No stuck rings in 14 months of unusually tough work!

CLEARING 4000 ACRES OF TIMBER LAND in 14 months is the tough job being completed by these big Allis-Chalmers diesels, owned by Paul C. Helmick Co., Seattle, on Bureau of Reclamation job at Cascade, Idaho. Yet, lubricated with RPM DELO Special Lubricating Oil, there was not a single stuck ring or bearing failure in the entire period! Timber was pulled down in 30 ft. swaths by a 130 ft. anchor chain hooked to two of the 275-h.p. HD 20's; logs were bucked into piles and burned.

ENGINE PARTS WERE KEPT CLEAN by the special ingredients of RPM DELO Oils. The representative piston, sleeve, wrist pin, and con-rod bearing shown in this unretouched photograph, indicate the minimum carbon deposits. Assembly was pulled for inspection when the A-C unit was in for check-up... and put back in service as is.

How RPM DELO Oils keep engines clean and prevent wear



A. Contain special additives that provide metal-adhesion qualities...keep oil on parts whether they are hot or cold, running or idle.

B. Anti-oxidant resists deterioration of oil and formation of lacquer...prevents ring-sticking. Detergent keeps parts clean, helps prevent scuffing.

C. Special compounds stop corrosion of bearing metal, and oil foaming in both wet and dry sump engines.

There is an RPM DELO Oil to meet every heavy-duty engine operation condition. FREE BOOKLET on the RPM DELO Oils gives you complete information. Write or ask for it today.

RPM DELO LUBRICATING OILS

TRADEMARK "RPM DELO" REG. U.S. PAT. OFF.

FOR MORE INFORMATION about this or other petroleum products of any kind, or the name of your nearest distributor handling them, write or call any of the companies listed below.

STANDARD OIL COMPANY OF CALIFORNIA • San Francisco 20
THE CALIFORNIA OIL COMPANY • Barber, New Jersey
STANDARD OIL COMPANY OF TEXAS • El Paso
THE CALIFORNIA COMPANY • Denver 1, Colorado

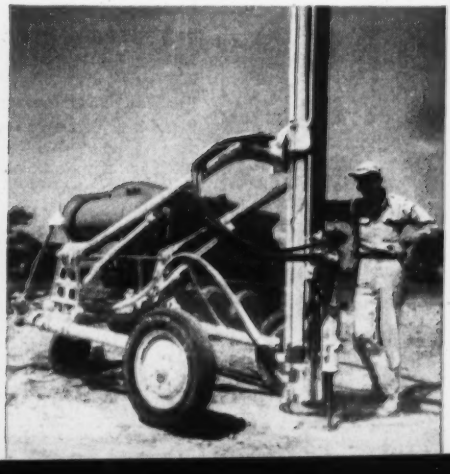
Le Roi *gives you more for your money!*

MORE AIR POWER! MORE FOOTAGE! MORE PROFITS!

e Roi-CLEVELAND Sinkers are avail-ble in sizes from 18 to 80 lbs., with dvantages you want. They use less air. hey're easy to handle—operators don't re easily. And they have what it takes drill more feet per shift: Strong rota-on. Powerful blow. High drilling speed.

Tractair is a combination 35-hp tractor and 105-cfm compressor that takes air power anywhere. Here, it operates two Le Roi-CLEVELAND backfill tampers. Can also be used for breaking, drilling — and, when equipped with front-end loader, for digging, loading, lifting, backfilling, snow-plowing, etc. This way, Tractair cuts costs and saves you the extra expense of special equipment.

Le Roi-CLEVELAND DR30 Wagon Drill puts deep holes down faster, with less air, than any other wagon drill available. Uses 4" bore Le Roi-CLEVELAND Drifter. Has strong rotation, powerful hole-cleaning ability, and high drilling speed with big bits. For shallow holes, the lightweight Le Roi-CLEVELAND DR34 is available.



Get air jobs done faster!

with Le Roi Airmaster Compressors and Le Roi-CLEVELAND Air Tools

There are 9 sizes of Airmasters — and 14 models—ranging from 60 cfm to 600 cfm. A 600-cfm diesel unit is shown here. It's got the capacity to operate two deep-hole wagon drills with plenty of air to spare for other tools.

Every Airmaster is powered by a heavy-duty Le Roi engine designed especially for compressor service.

Le Roi-CLEVELAND Paving Breakers are available in sizes from 18 to 80 lbs. They really pack a wallop—make short work of breaking up the hardest concrete. Protective air cushion in front end assures long life. Well balanced for easy handling. Operators like them — and get more done.

YOU make the most of air power—speed your work and keep costs down — when you team up Le Roi Airmaster Compressors and Le Roi-CLEVELAND Air Tools. Here's why:

First of all, a Le Roi Airmaster gives you more air capacity for less money. You can get an Airmaster that's *exactly right* for size — one that's not too big or too little for the job to be done — one that lets you do the most work at the least cost. That's because Le Roi has the industry's widest range of sizes to choose from.

You're ahead other ways, too: Airmaster's full-pressure system delivers *all* the air you call for, *when* you call for it. Conservative rating of the Airmaster engine provides ample power reserve — for lower fuel consumption, less maintenance, lower operating costs. Magneto ignition gives you quick, easy starting — saves time — lets you get going faster.

Now, the best way to use the low-cost air produced by Airmaster is to let it power Le Roi-CLEVELAND Air Tools. They're built to really take punishment — and to break more pavement, dig more clay, drill more rock, tamp more fill.

Enjoy Le Roi air-power advantages. Use Le Roi Airmaster and Le Roi-CLEVELAND Air Tools on your next job — and watch costs drop. See your Le Roi distributor. Write for latest bulletins.

Compressors
Rock Drills
Tractair
Engines . . .

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C-145

BLAW-KNOX STEEL GRATING
in the Front Rank of Industry
ON ALL 5 COUNTS
OPEN SPACE • STRENGTH
LONG LIFE • CLEANNESS
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Blaw-Knox Steel Grating is electroforged into rigid, one-piece panels, using twisted cross bars for firm footing. Bring your open steel flooring problems to Blaw-Knox for expert help. Bulletin 2365 sent on request.
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New Woven Tape Is Non-Metallic

THE *LUFKIN* HI-LINE NON-METALLIC WOVEN TAPE

The toughest miracle fibres recently developed by science are used in this new tape, which is designed in every way for longer wear. It has greatest dimensional stability—even after it is repeatedly soaked and dried. Markings are protected by coatings of specially compounded plastic that is resistant to abrasion, cracking, mildew, moisture, and temperature changes. The case is hand-stitched genuine leather, as tests have proven that leather wears longest. The first end of the tape—the point of greatest wear—is reinforced with durable green plastic, imprinted "Non-Metallic." "Instantaneous" readings are faster, more accurate. Last preceding foot number is repeated in red at each inch (or tenth of a foot). Total reading is at point of measurement.

Numerous Applications—the non-metallic Hi-Line is ideal for power, utility, and general work around high tension circuits. Woven tapes are popular in highway and general construction work when steel tape accuracy is not required. The Hi-Line can take the abrasion, moisture, and general hard usage which these jobs require. This tape is indicated wherever a non-conductor is needed. One example is in pipe-line work when companies check pipe laid for payment. Often such measuring goes across farm lands where electric fences give "jolts" to men measuring with steel or metallic woven tapes.

Descriptive Folder Available—a four-color folder describing the Hi-Line, and listing lengths, markings available, and prices, can be obtained by writing The Lufkin Rule Company, Saginaw, Michigan, Dept. ENR.

BUY *LUFKIN* TAPES • RULES • PRECISION TOOLS

FROM YOUR SUPPLY HOUSE

THE LUFKIN RULE CO., SAGINAW, MICH. 219

breaches of contract, including breaches by the government.

In other words, in the absence of a provision in the subcontract absolving the prime contractor from liability for damages resulting from a breach of the contract on the part of the party for whom the work is being done, the prime contractor is entitled to include in the damages sustained by him those sustained by his subcontractor, since he would be liable to his subcontractor for such damages.

(1) Warren Bros. Roads Co. v United States, 105 F. Supp. 826 (U.S. Court of Claims, June 1952).

Obligation of contractor to check dimensions

A building contract provided that the contractor should check and verify all the dimensions on the drawings of a building. The contractor built foundations for the building to plan dimensions without checking the dimensions of the floor plans. He then discovered that there were inconsistencies between the dimensions for the foundation and those for the floor plans that caused him to perform additional work. The contractor then brought an action to recover for the increased cost of the work resulting from the irreconcilable dimensions.

The court held that the provision of the contract imposed a duty on the contractor to check up the dimensions, also that party for whom the work was being done was not responsible for the cost of doing the additional work even though he had had the plans prepared.[1]

(1) Montgomery v Kimbrough Homes, 59 So. 2d 273, Supreme Court of Mississippi, June 9, 1952.

Misrepresentation of facts

"It is well settled law that under a contract such as we have here, in which it is specifically stipulated that the city does not guarantee the completeness or correctness of the borings, or the results thereof, the city is nevertheless liable if it knowingly misrepresents the conditions, or if it withholds from the contractor any material information of which the city had knowledge and which, if disclosed, would have tended to indicate the incorrectness of the boring sheets attached to the contract. In other words, implicit in a contract of the kind we are considering is the requirement that the city shall act in good faith."[1]

(1) Johnson Corp. v. City of New York, 162 Misc. 665, 669; affirmed 251 App. Div. 811.

(These summaries of court decisions are prepared by I. Vernon Werbin, New York attorney and civil engineer.)

You Asked for It...

a Bigger, Better

WISCONSIN HEAVY-DUTY Air-Cooled ENGINE

16% More Power for Your Equipment

VG4D Standard Engine.

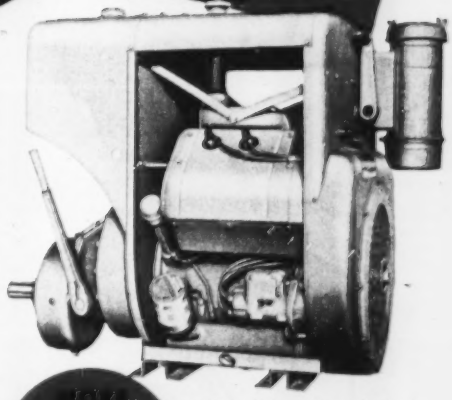
The NEW Model VG4D 25 to 36 H.P.

Another engineering achievement . . . the NEW Model VG4D V-type 4-cylinder Wisconsin Heavy-Duty Air-Cooled Engine, increasing the power range to 36 hp. — a power gain of more than 16% over the VP4D, former top engine in the line.

The NEW Model VG4D is an exceptionally smooth-running, even-firing engine. Its light weight and compactness in design simplify the problem of engine installation on modern equipment where weight and space limitations are important factors.

Every one of the traditional Wisconsin 4-cylinder features are built into this new model. These include, to name a few, tapered roller main bearings, dynamically balanced forged crankshaft, mirror finish on crank pins, Stellite-faced exhaust valves and valve seat inserts and honed cylinders for long, dependable, heavy-duty engine life. The Model VG4D engine is definitely *Tops in Performance*, delivering a maximum of power per pound of engine weight, at minimum operating and maintenance costs.

We invite your request for complete detailed specifications.



VG4D Power Unit with clutch reduction.

MORE Power TO FIT THE JOB

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WISCONSIN MOTOR CORPORATION

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. . . then check the BLAW-KNOX "COMPLETE

EVEN the best of equipment needs maintenance and repair, and when one machine goes down, your whole project marks time. You can avoid such maintenance bottlenecks by taking advantage of *all* the benefits offered by a "Package" paving system, because the Blaw-Knox "Complete Package" is more than just a package of equipment . . . it's a one-source package of *everything* you need . . . from experienced assistance with your problems, right down to preventive maintenance to help you eliminate bottlenecks.

When you get all your equipment from one source, you can be sure that each machine is engineered to match the others in size, capacity and operation. You get the most efficient sequence of operations without overtaxing some machines to keep up with the others. Balanced production with Blaw-Knox matched equipment reduces breakdowns and keeps operations flowing at a steady, productive pace.

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BOTTLENECKS CHOKING YOUR PROFITS?

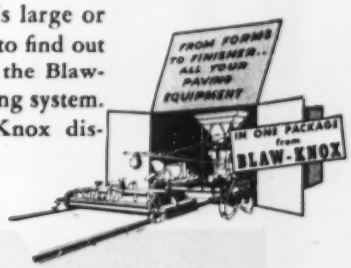
ONE-SOURCE advantages of the PACKAGE" of concrete paving equipment

With one-source equipment, you have the advantages of one-source maintenance and repair service for *all* your equipment. There's no need to waste time and effort running down the parts or service you need . . . often one phone call to your Blaw-Knox distributor is all that's required, because one Blaw-Knox trained man can service *all* your package equipment. And when he services the machine that needs immediate attention, he can check over all the rest of your equipment to stop trouble before it starts. Preventive maintenance is standard practice when all your equipment belongs to one family. From your Blaw-Knox distributor you get prompt service on genuine factory-built parts as well as expert attention to your problems from men who are experienced on all kinds of construction work, who know "package" operation backwards and forwards and who are trained to help you get the most out of your equipment.

In addition, you get all these other one-source advantages . . . you get every piece of equipment you need *in a package to fit your specific job.* You get it all on one order, in one shipment, with just one financial contact, and backed by one reliable manufacturer who gladly assumes responsibility for the field performance of all your equipment.

When you bid successfully on a contract, your battle starts against weather, supplies and aggravating downtime. Blaw-Knox can't do anything about the weather, but when you use the Blaw-Knox "Complete Package" of equipment and service, you can be sure of licking profit-choking maintenance bottlenecks.

Whether your job is large or small, it will pay you to find out all the advantages of the Blaw-Knox "Package" paving system. Talk to your Blaw-Knox distributor today.



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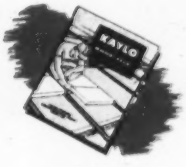
Kaylo Roof Deck, combining all the qualities essential to a superior deck, permits lightweight construction with substantial structural economies. These are the qualities of a unique material—hydrous calcium silicate.

Despite its light weight, Kaylo Roof Deck has a high safety factor and is approved by leading code authorities. Kaylo Deck is incombustible—an effective barrier to the spread of fire. The slabs alone withstand fire for over three hours.

With insulating efficiency equivalent to one and one-half inches of standard insulation board, Kaylo Deck helps maintain desired temperature levels. Kaylo Deck forms a completed ceiling that reflects more than 80 per cent of the light striking it, even without painting or other treatment. Slabs are of convenient size for fast and easy placement to save on construction time.

Get the whole story of Kaylo Roof Deck's advantages today.

WRITE FOR FREE BOOK—"Kaylo Insulating Roof Tile." Address: Dept. N-353, Owens-Illinois Glass Company, Kaylo Division, Toledo 1, Ohio.



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BOOKS

More than hydraulics

HANDBOOK OF APPLIED HYDRAULICS—Second Edition. Cavin V. Davis, Editor in chief, and 21 contributors. 1,272 pp. McGraw-Hill Book Co., 330 W. 42nd St., New York 36, N. Y. $15.

In the revision of this comprehensive handbook, 200 pages of text have been added and some sections have been rewritten in whole or in part. Like the first edition, its scope goes far beyond what is generally looked upon as applied hydraulics, covering in considerable detail the design of all types of concrete dams, and both earth and rock-fill dams, canals, irrigation, hydro-electric power plants, water purification and sewage treatment. Also included is information on spillways and spillway gates and high-pressure outlet valves. New sections cover water hammer, sewage tanks, navigation locks and speed regulation.

Would unpad specs

STREAMLINED SPECIFICATIONS STANDARDS—Vol. I, by Ben John Small. 1,000 pp. Reinhold Publishing Corp., New York 36, N. Y. $20.

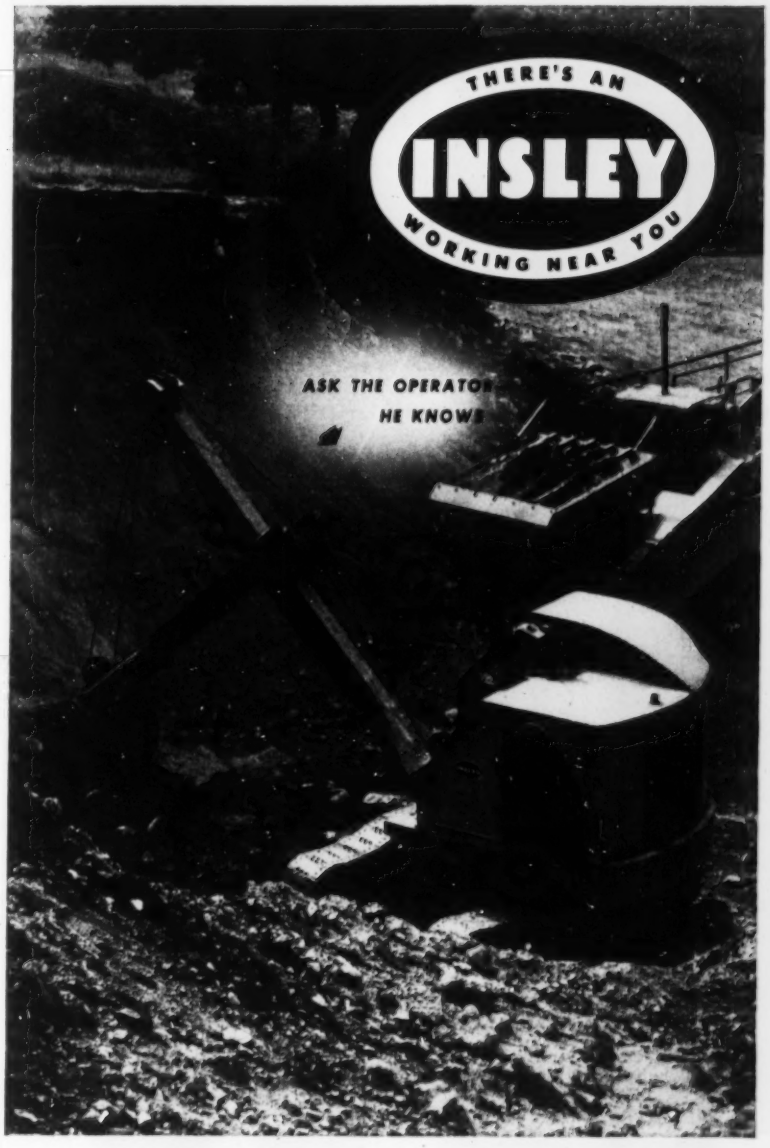
If the technique of writing specifications advocated by this author becomes common usage, the building industry will be greatly indebted to him. For Mr. Small favors elimination of all excess verbiage from specifications. His book, first of three volumes, contains sample abbreviated specifications for the contract, site work, structural work, masonry, weather protection, metal work and finishing of a building, showing how few words are really necessary.

Volume I is supplied as three pads. Pages are standard-size, 8½x11-in., sheets. They are easily removed for photostating and editing to fit specific project requirements. Copy is printed on only one side of a sheet and looks like double-spaced typewriting. Hence, it is easy to type insertions, where needed.

The subject matter of Volume I is grouped into 63 alphabetically arranged sections. These are numbered for quick reference or for separate filing by sections or entire categories. Additional volumes with specifications for plumbing, heating, electrical work, ventilation and other building equipment are also being prepared.

In streamlining specifications, Mr. Small is careful that there should be no sacrifice of clarity or comprehensiveness. He emphasizes conciseness.

(Continued on page 109)



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PROJECT RATED
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that Insley Equipment can be rated-for-the-project . . . he knows that specification alternates make it possible to buy the exact equipment to do his job best.

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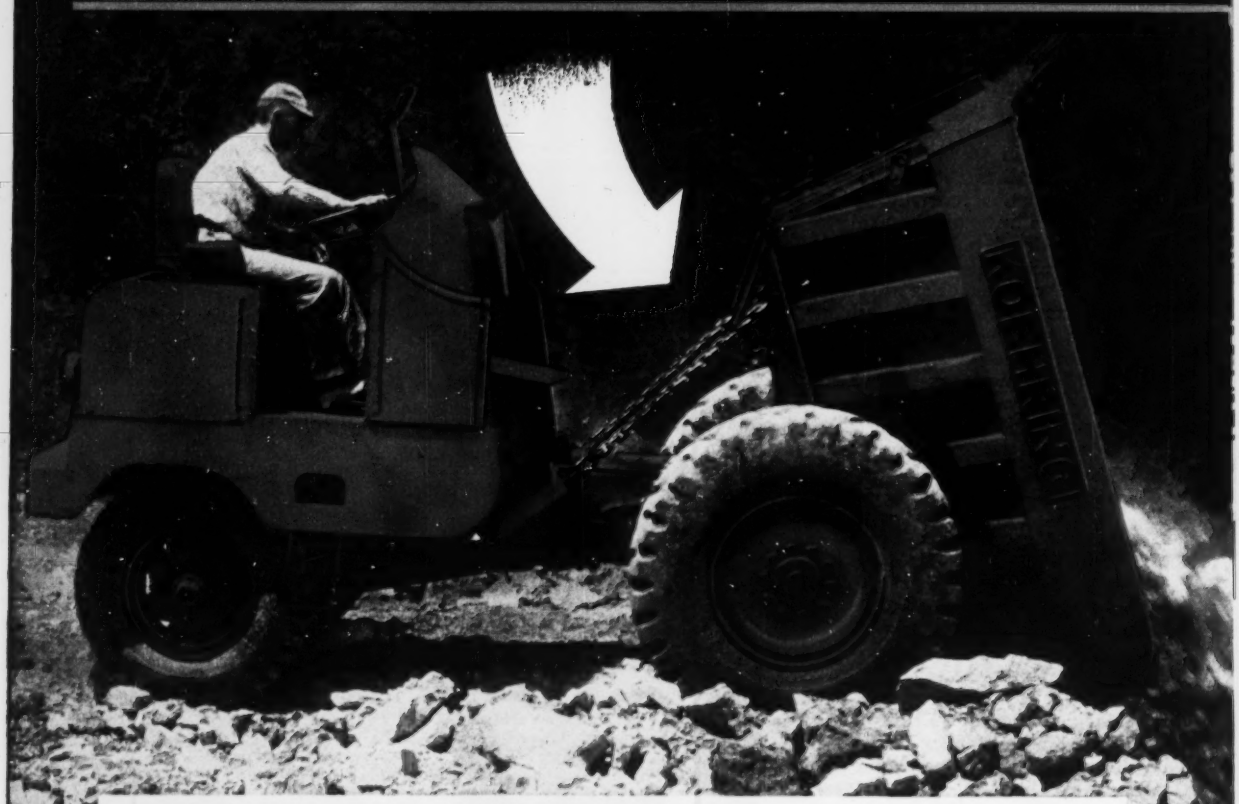

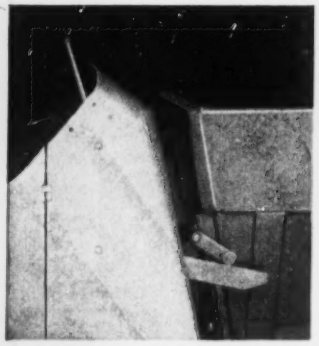

SIMPLE BODY-RELEASE LEVER WORKS INSTANTANEOUSLY

1 Body release lever is located at steering wheel, no reaching or stretching. Lever engages trip rod on Dumptor body . . .

2 Trip rod instantly releases latch hooks from body latch seat on the Dumptor chassis frame. Gravity dumps the load . . .

3 Body rolls on heavy-duty rockers. Snub chains attached to big coil-spring shock-absorbers check body at 70-degree tilt.

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body hoists

Koehring Dumptors have no slow-working body hoists. You trip the release lever and gravity dumps the 6-yard load in one second.

Cuts maintenance costs . . . there are no complicated mechanical hoists to slow up haul cycles . . . no expensive hoist replacement parts, maintenance or down time to eat into your profits. And gravity dump is always instantaneous, trouble-free in all temperature extremes . . . never wears out.

No spring maintenance is another money-saving advantage you get with Koehring Dumptors. There is just one big, double-coil chassis spring on steering axle . . . none on driving axle. Big shock-absorbing drive tires eliminate need for more springs . . . save spring maintenance time and replacement costs.

Check your body hoist and spring maintenance costs for a year . . . see how much you will save when you haul with heavy-duty Dumptors. In addition, Koehring constant-mesh transmission gives Dumptor the same 3-speed travel forward and reverse for "no-turn" shuttle hauling . . . increases production and your profits.

Get complete facts and figures from your Koehring distributor . . . or write to us for informative 28-page Dumptor® catalog.

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9¾-ft.-per-min. Parsons 250 Trenchliner®

With 30 digging feeds, Parsons 250 Trenchliner produces up to 9¾ feet of clean-cut trench per min. . . . digs 16" to 42" wide, up to 12½ feet deep . . . cuts within 11" of either side. Reversible spoil conveyor shifts through machine by power in less than 1 min. to dump right or left. Constant discharge height speeds loading into trucks. Larger and smaller models are also available . . . contact your Parsons distributor now.

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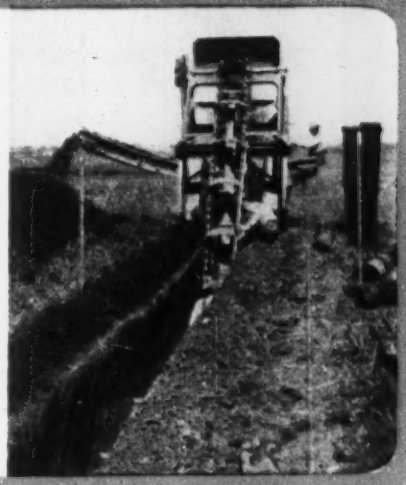

9'-1" discharge with Kwik-Mix Tower Loader

This Kwik-Mix Tower Loader fits 11-S and 16-S Dandie® concrete mixers, discharges at 9'-1" into trucks, overhead hoppers, or stockpiles. Bucket holds full batch, is powered by mixer engine and dumps automatically at top of tower. Also available for Kwik-Mix No. 10 and 14 bituminous mixers. Get complete information from your Kwik-Mix distributor, or send for literature on low-cost, time-saving Tower Loader today.

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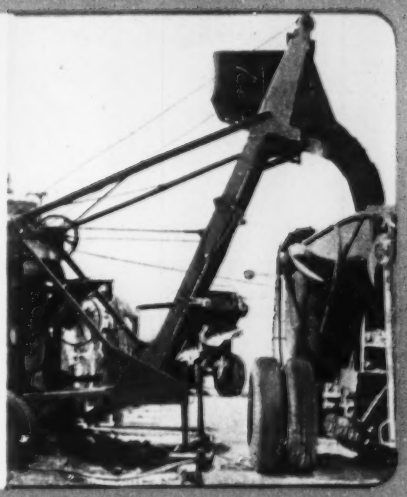

254 to 611-bbl. Johnson Single Silos

In various sizes of 11' and 12' diameters, provide 254, 373, 492, 611-bbl. and larger cement storage. Gasoline or electric-driven screw conveyor and bucket elevator, box-car, truck receiving hoppers or undertrack unloading arrangement, electric bin signals, aeration diffusers, one or two 1000-lb. batchers. Larger batcher, added leg and elevator height availble for mix truck charging. Silos are 1-piece, all-welded.

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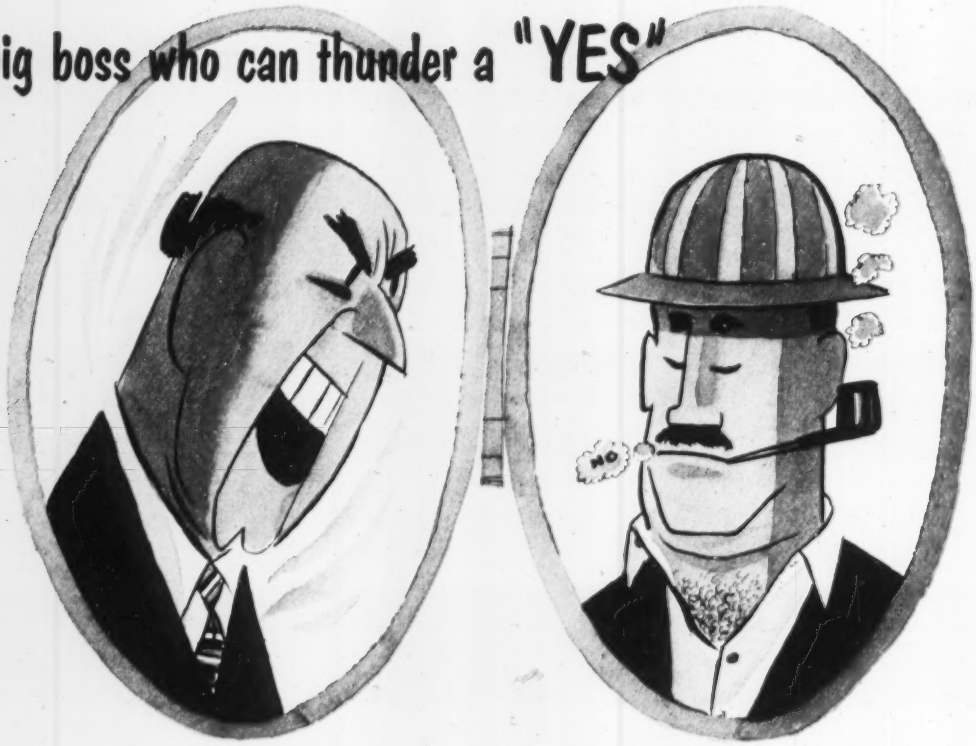
the big boss who can thunder a "YES"



and the little boss who quietly shakes his head "NO"

Both types are important to you because both have to be sold on your product. In *every* important buying decision in this business of building, many bosses have their say before the final "OK" is given. You can't afford to overlook any of the many types and kinds of bosses that can affect your sale.

Bosses of all sizes, shapes, titles and jobs read Engineering News-Record every week because they need a reliable flow of information on all the forces and factors that make construction tick. The only place they can get all this information – and get it quickly, concisely, lucidly, and all in one package – is Engineering News-Record.

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in construction, it takes many bosses to make one purchase

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The first step is to eliminate repetition. For example, the words "The contractor shall . . ." in most specifications are repeated throughout. The author deletes them and instead writes a governing clause that presents the obligations of the contractor. This clause, he says, should be incorporated in the general conditions.

Other steps to shorten specifications include adoption of abbreviations, omission of scope of the work, use of proprietary names for materials where possible, and reference to manufacturers' printed installation instructions.

Continuity analysis

STATICALLY INDETERMINATE STRUCTURES —By Chu-Kai Wang. 424 pp. McGraw-Hill Book Co., 330 W. 42nd St., New York 36, N. Y., and London. $7.50.

STATICALLY INDETERMINATE STRUCTURES —By Paul Andersen. 318 pp. The Ronald Press Co., 15 East 26th St., New York 10, N. Y. $7.50.

Both books are intended for use with courses in the analysis of statically indeterminate structures in the senior year or first-year graduate work. Both cover somewhat the same ground—theorem of least work, slope deflection, moment distribution. The authors differ, however, in their objectives.

Mr. Wang is principally concerned with teaching theory. Mr. Andersen, on the other hand, prefers to approach the subject from the designer's viewpoint. Hence, in Mr. Andersen's text, there is more material on such practical topics as rigid connections, knee bracing and effect of actual dimensions of members on theoretical calculations. Mr. Wang makes extensive use of the column analogy; Mr. Andersen argues that it does not result in any reduction of numerical work (moment-area will do the same thing) and that it imposes on the student the necessity of learning another "language."

Notes on Pamphlets

• **Industrial development practices** are covered in two pamphlets issued recently. The smaller is "Handbook of Procedures on Organizing for Industrial Development" which is Publication No. 74, Maryland State Planning Commission, 100 Equitable Bldg., Baltimore 2, Md. (50¢). The larger pamphlet is Technical Bulletin No. 19 of the Urban Land Institute, 1737 K St., Washington 6, D. C. Its title is "Planned Industrial Districts, Their Organization and Development." ($5.00). It is made up largely of maps and descriptions of several large indus-

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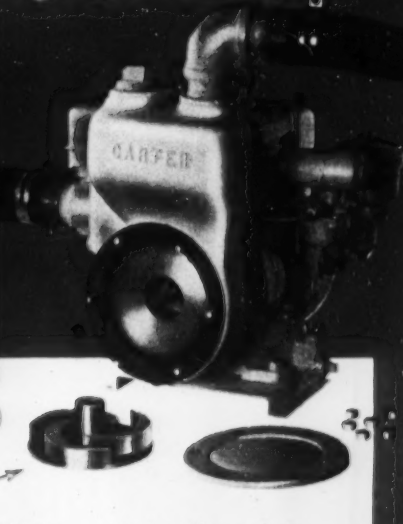
HUMDINGER
SIMPLEST, MOST PRACTICAL Self-Priming Centrifugal Ever Built



ONLY TWO BASIC PARTS . . . the impeller and the seal, that's all you'll find inside the new Humdinger. Here's an advanced new pump design that eliminates all non-essential, non-pumping parts . . . resulting in the greatest possible simplicity of action and a remarkably efficient pump performance.

A NEW PRINCIPLE OF IMPELLER ADJUSTMENT . . . maintains peak efficiency for the entire life of the pump *without shims, wear plates, or replacement parts of any kind.* This simple adjustment completely compensates for impeller wear quickly and easily . . . without removing impeller, without disconnecting suction or discharge hoses, without dismantling the pump.

A NEW IDEA IN VOLUTE DESIGN . . . Twin-Coaxial Volute Passages, an exclusive Carter development, completely eliminates mechanical valves and priming devices. Here's a lighter more compact pump case that offers greater capacity, more trash handling ability, and the fastest most foolproof priming action ever developed.

Here's a Self-priming Centrifugal that's years ahead. The Humdinger is *really new* . . . completely different . . . engineered to give Contractors the finest pumping equipment available.

COMPLETE RANGE OF SIZES

FREE BULLETIN #5300
fully describes the entire line of new HUMDINGERS
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RALPH B. CARTER CO.
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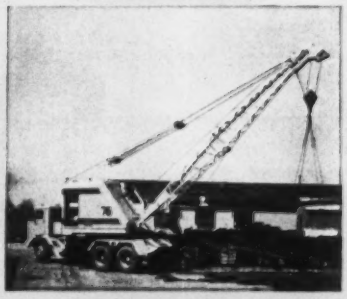
GarWood 75

New Cranes Designed for More "On the Job" Time!

Handle all types of precision steel erecting, concrete work and any crane, clam, magnet or dragline job with the new standard-duty 75A or heavy-duty 75B Gar Wood cranes! . . . Collapsible high gantry simplifies raising of longest booms . . . Pendant cables speed changing of boom lengths . . . Optional *power load lowering* and *fluid coupling* give smoothest possible crane operation . . . Hammer head boom point keeps cable away from boom — gives added boom strength — keeps cable costs low . . . Crane sections pin and bolt connected for rigidity and strength . . . Right angle drive, power actuated hoist clutches and conical hook rollers . . . Easily converted to all attachments including the new, exclusive Gar Wood Foundation Borer!

FOR LIFTING POWER with MOBILITY

A Gar Wood 75BT truck crane will do the job. Lifts up to 40,000 lbs. Has all the heavy-duty features yet gets around fast. Ideal for long boom and steel erection work.



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BOOKS

trial districts, with general comment on such subjects as design, location and management. The Maryland pamphlet includes information on legal aspects of community industrial development programs and on financing.

• **The publication** of the Engineers and Architects Association (124 West Fourth St., Los Angeles 13, Calif.), formerly called "EAA Record" is now appearing in regular magazine size as a monthly called "Engineers and Architects Sphere." The first issue appeared in November.

• **Principles** to be observed in layout out a material-handling system for efficient production are summarized in a 12-page booklet, "Material Handling," published by the Material Handling Institute, Inc. The booklet also indicates how a material-handling problem should be analyzed to arrive at an economical solution and how to develop cost data. It may be obtained from the MHI, 1108 Clark Building, Pittsburgh 22, Pa., for $0.50 (free to educators and students).

• **Tables presented** in ASCE Manual 31, "Design of Cylindrical Concrete Roofs," simplify considerably the work of determining stresses in thin-shell singly curved structures. Several examples are given to illustrate the recommended design procedure. While some approximations are suggested to reduce the labor in analyzing a shell roof, an exact solution is derived—believed to be the first time this has been done. Also included are methods for designing continuous shells and shells with supporting beams and ribs, and for evaluating the effects of buckling and rib deformations. Manual 31, a 177-page, paper-covered book, may be obtained from the American Society of Civil Engineers, 33 West 39th Street, New York 18, N. Y., for $5 ($2.50 for members).

• **Promotional kit**—"Let's have clean water" is the title of an envelope of information put out by the Public Health Service to aid communities in promoting stream pollution projects. Complete with facts and figures and some ideas on how to present them, the kit is being made available to those interested through the state and interstate pollution control agencies.

• **A new American Standard,** "Building Code Requirements for Excavations and Foundations (A56.1–1952)," may now be obtained from the American Standards Association, 70 E. 45th

St., New York 17, N. Y., or the American Society of Civil Engineers, 29 W. 39th St., New York 18, N. Y., for $0.80. Sponsored by the American Society of Civil Engineers, the code not only offers recommendations for safe soil-bearing capacities and pile loads but also makes suggestions to insure permanence of foundations. An appendix contains supplementary material to assist local building-code committees in applying the code in their locality.

• **Metal-finishing wastes**—Merits and shortcomings of all known methods of treating metal-finishing wastes before their disposal to sewers or streams are discussed and evaluated in this authoritative 72-page report: "Methods for Treating Metal-Finishing Wastes". It is another in the series of industrial waste manuals being published by the Ohio River Valley Water Sanitation Commission. Compiled by members of the commission's Metal Finishing Industry-Action Committee, the manual details available methods and describes how to choose the process best suited to particular needs. Techniques, reactions, and design considerations are discussed. Copies may be obtained from the Ohio River Valley Water Sanitation Commission at 414 Walnut St., Cincinnati 2, Ohio—price, $2.

Reports and Pamphlets

REPORT ON THE INVESTIGATION OF LEACHING OF ASH DUMPS—SWPCB Publication No. 2, State Water Pollution Control Board, Sacramento, Calif. Copies may be purchased from the Documents Section, State Printing Division, 11th and "O" Streets, Sacramento, Calif. $1.00.

DISINFECTION OF RURAL SURFACE WATER SUPPLIES WITH CHLORINE—Bulletin No. 128, Texas Engineering Experiment Station, College Station, Texas.

PROCEEDINGS OF THE SEVENTH INDUSTRIAL WASTE CONFERENCE—Extension Series No. 79, Engineering Extension Department, Purdue University, Lafayette, Indiana. $1.25.

ANNOTATED BIBLIOGRAPHY ON HYDROLOGY, 1941-1950, (UNITED STATES & CANADA — Notes on Hydrologic Activities, Bulletin No. 5, Bureau of Reclamation, Department of the Interior, Washington 25, D.C.

HOW TO IMPROVE THE UTILIZATION OF ENGINEERING MANPOWER — Executive Research Survey Number 2, The National Society of Professional Engineers, 1121 Fifteenth St., N. W., Washington 5, D.C. $2.00.

GarWood 75

A New 3/4 yd. Shovel with Many Exclusive Features!

Gar Wood has designed the *new* "75 series" shovels to combine many new and exclusive operating features with time-tested standards of advanced design and rugged construction . . . Both the standard-duty 75A and the heavy-duty 75B have *power actuated mechanical drum clutches, right angle drive, independent chain crowd, power steering, independent travel, conical hook rollers* to eliminate rocking and an optional *hydraulic coupling* to absorb shock loads . . . Easy field conversion for crane, clam, dragline, magnet, pile driver or trench hoe work . . . Don't miss checking the profit potentials of the exclusive new Gar Wood Foundation Borer — the machine that bores and bells in one operation . . . See your dealer for details —

EASY CONVERSION IS A FEATURE

Your Gar Wood shovel can be quickly adapted for trench hoe work. Digs up to 17'10" depth, dumps at heights up to 19'3". Standard 40" dipper. 36", 31" and 26" widths optional.

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Metal windows... window and door framing

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Masonry ties... roof drains... floor sleepers

Door bucks... wire mesh... furring strips

Beat down fastening costs, into steel or concrete with super-speed Ramset Jobmaster

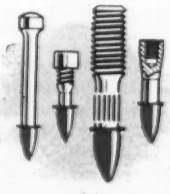
FASTENING SYSTEM

Prove for yourself the dollar-and-cents economy and amazing time saving by doing fastening jobs like these, and many others, with RAMSET JOBMASTER and Tru-Set Fasteners. Without any obligation, your local dealer will show you, right on the job, how thousands of RAMSET users have profited, for six years, from the super-speed RAMSET SYSTEM.

Compare JOBMASTER split-second fastening with any other method. See the compact, light-weight, one-piece tool, with fast opening and loading, trigger action and one-hand operation. Watch how Roto-set safety shield, angle fire control and the exclusive Red-Tip Pilot assure perpendicular contact of Tru-Set Fasteners with the work, for straight, firm penetration and highest efficiency.

✻ SEND FOR "HOW-TO-DO-IT" BOOKLET

Gives detailed suggestions and diagrams for scores of jobs. Tells how to select the best Tru-Set Fastener and power charge. Points out many ways to do your fastening work faster, easier, at lower cost, with RAMSET SYSTEM. Ask your RAMSET dealer for your copy of *Modern Fastening Methods* or write us.



Ramset Fasteners, INC.

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section

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ELSIE EAVES, Manager *J. A. MAHONEY, Reports* *M. R. ROESSLER, Statistics*

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

Massachusetts—PARK IMPRVS.—B.A. 4/1—State, Dpt. Conservation, Parks Div., 15 Ashburton Pl., Boston, Contr. PF 25-53 Contr. 525-53 swimming pool parking area, drinking water supply; PF 302 Contr. 514-52 bath house, comfort station, Cochituate State Park, Natick, $60,000. Plans deposit $5 each, refundable, Porter W. Dorr, 101 Eliot Ave., Newton, consult. archt.

† **Me., East Orland**—RACEWAYS—B.A. 4/10—Dpt. Interior, Fish & Wildlife Service, 59 Temple Pl., Boston 11, Mass., concrete raceways, U. S. Fish Cultural Station, Inv. No. FW6-1886.

BIDS ASKED—BUILDINGS

Mass., Springfield—COMMUNITY CENTER—B.A. 3/30—Jewish Community Center of Springfield, Inc., Maxwell H. Tasgal, pres., 130 Maple St., 1 story, masonry Jewish Community Center, Dickinson St. $425,000. Alderman & Mac Neish, 134 Chestnut St., archts. CD 11/13.

Mass., Webster—RECREATION—B.A. 4/1—Polish American Citizens Club, Whitcomb St., recreation bldg. $150,000. Extended date. Louis Domain, 390 Main St., Worcester, designer, CD 2/25.

Mass., Norwood—HOSPITAL—B.A. 4/2—Norwood Hospital, Trustees Office, 792 Washington St., Proj. B hospital addn., alterations, equipment, $300,000. Plans deposit $50, refundable. Conrad & Son, Inc., 33 Union St., E. Walpole, engr. CD 12/31 under LB.

▲ **Mass., Boston**—PARKING FACILITIES—B.A. 5-1—City, Real Estate Comn., City Hall Annex, leasing public parking facilities, Copley Square, St. James Ave., Providence St., Berkeley St. and Clarendon St. term of 40 years from June 1 at annual rental not less than $45,000 rein.-con. $1,250,000. Plans deposit $100 refundable. Thomas Worcester, Inc., 85 State St., engr.-archt. CD 12/17/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Stewart & Williams, Inc., & T. W. Cunningham,** 185 Water St., Augusta, Me. LB **$106,400,** est. $100,000 advanced undersea weapons shop, Naval Air Station, Spec. 34869, BRUNSWICK, ME. First Naval Dist., 495 Summer St., Boston, Mass. Bids Mar. 10. CD 2/18.

† **Conti & Donahue,** 239 Commercial St., Lynn, Mass. LB **$96,608,** est. $100,000. rehabilitate salt water sys. and timber piers, Naval Industrial Reserve Gear Plant, Spec. 34879, LYNN, MASS. First Naval Dist., 495 Summer St., Boston, Mass. Bids Mar. 12. CD 2/24.

▲ **CONNECTICUT**—State Hy. Dpt., State Office Bldg., Hartford.

M. A. Gammino Constr. Co., 728 Valley St., Providence, R.I., CA, **$1,631,173,** grading, drainage 50,816 lin. ft., c.conc. pavement on Eastbound Roadway Rte. 15, incl. rolled beam bridges, 7 box culverts etc., Tolland-Willington-Ashford and Union. Bids Feb. 9, awarded Mar. 5. CD 2/16, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **Henry E. Wile Co.,** 862 Walnut St., Newton, Mass., Lb **$1,407,038,** Alt. No. 1, **$1,395,848,** Climatic Projects, LABORATORY, supplementary facilities east side of Mt. Washington—Toll Rd., ENG-19-016-53-17, MOUNT WASHINGTON, N. H. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Mar. 13. CD 3/9.

▲ **Stony Brook Village Corp.,** 236 Turtle Pond Parkway, Hyde Park, Mass. Owner Builds. **$3,000,000.** 1 story, frame ranch type prefabricated HOUSES, Turtle Pond Parkway, HYDE PARK, MASS. CD 2/18.

Frasca Constr. Co., 23 Everett St., Lynn, Mass. LB **$435,894.** Alt. A **$424,635.** CHURCH and COMMUNITY CENTER, S. Common St., LYNN, MASS. Greek Orthodox Community Church, S. Common St., Lynn, Mass. Bids Mar. 9 CD 2/9.

▲ **White Constr. Co.,** 134 Newbury St., Boston Mass. CA **$1,279,000.** Six Year High SCHOOL, East St., adjoining Memorial Park, MANSFIELD, MASS. Town, Town Hall, Mansfield, Mass. CD 3/12, under LB.

Victor Trager, 606 Main St., Malden, Mass. Owner Builds. **$500,000.** 20 RESIDENCES, MARBLEHEAD, MASS. CD 3/11.

Braintree Lakeview Realty Co., Inc., 12 Weatherfield Rd., Natick, Mass. Owner Builds. **$800,000.** 86 RESIDENCES, NATICK, MASS. CD 3/11.

▲ **Rich Bros. Constr. Co.,** 410 Park Square Bldg., Boston, Mass. CA **$1,173,439,** est. $1,500,000. HIGH SCHOOL, Main St. and Chickering Rd., NORTH ANDOVER, MASS. Town, High School Bldg., F. B. Kittridge, chn., Supt. Schools, 120 Main St., North Andover, Mass. CD 3/10, under LB.

Richard Tonry, 60 Prospect St., Hingham, Mass. Owner Builds. **$300,000.** 30 RESIDENCES, NORWELL, MASS. CD 3/11.

† **Ernest F. Carlson, Inc.,** 1694 Main St., Springfield, Mass. LB **$576,352.** general purpose WAREHOUSE addn., Springfield Armory, Eng. 19-016-53-65, SPRINGFIELD, MASS. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Mar. 13. 2/20.

Santo J. Didonato, 19 Raciot Ave., Webster, Mass. Owner Builds. **$430,000.** 30 RESIDENCES, WEBSTER, MASS. CD 3/11.

Frank N. Gustafson & Sons, Inc., 251 Pitman St., Providence, R.I. CA. **$350,000.** Y.M.C.A. BUILDING addn. of boys bldg., Broad St., PROVIDENCE, R.I. Greater Providence Young Mens Christian Assn., 160 Broad St., Providence, R.I. CD 2/24.

▲ **City Housing Auth.,** 252 Hallett St., Bridgeport, Conn., cancelled bids to have been opened Mar. 13. Conn. MR 40, 192 unit housing, Beardsley Terrace Extension, BRIDGEPORT, CONN. Project cancelled. CD 2/25.

Joseph Godar, 273 House St., Glastonbury, Conn., Owner Builds, **$420,000,** 30 new HOMES, in Cape Cod-Colonial-Ranch Type, Forbes St. Area, EAST HARTFORD, CONN.

Green Manor Estates, Inc., 681 Parker St., Manchester, Conn. Separate Contracts. **$338,000,** 30 RESIDENCES, Vernon St., Denver and Barry Rds. MANCHESTER, CONN. CD 3/11.

Wadhams & May Co., 158 Lewis St., Hartford, Conn., CA **$889,140,** elementary SCHOOL, Vernon and Lidall Sts., MANCHESTER, CONN. Town, Municipal Bldg., 41 Center St., Manchester, Conn. Bids Mar. 4, awarded Mar. 10. CD 3/10, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

† **Md., Bainbridge**—ROOF COVERING—B.A. 4/7—Dist. P. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va., replacement of roof covering at U. S. Naval Hospital, NOY 77103, Spec. 36560. Plans deposit $10. CD 3/27/51, under Public Buildings.

† **N. Y., Niagara Falls**—WAREHOUSE—B.A. After April—U. S. Eng., 80 Lafayette St., New York, Zone 13, warehouse, Niagara Falls Air Force Base. $100,000. Crenshaw, Beardsley & King, 2112 Erie Blvd., East Syracuse, archts. CD 10/16.

▲† **N. Y., Newburgh**—AIRFIELD PAVING—Bids Asked—U. S. Eng., 80 Lafayette St., New York, Zone 13, airfield paving and grading, Stewart Air Force Base.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects inviolved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

N. Y., Buffalo—ARMORY—B.A. 5/26—U. S. Eng., 80 Lafayette St., New York, Zone 13, ORC armory. $100,000-$500,000. Extended date. Wright & Kremers, Inc., Niagara Falls, archts. CD 1/22.

▲† **N. J., Belle Mead**—WAREHOUSES—Bids Asked—U. S. Eng., 80 Lafayette St., New York, 13, N. Y. 10 warehouses. Approx. $5,000,000. Bid date extended indefinitely. CD 1/14.

† **N. Y., Albany**—ARMORY—Bids Asked—U. S. Eng., 80 Lafayette St., New York, Zone 13, ORC armory. $500,000-$1,000,000. Marcus T. Reynolds, 134 Washington Ave., archt. CD 1/15.

SOON LETS CONTRACT—BUILDINGS

Md., Parkville—CHURCH—St. Ursulas R.C. Church, 8801 Harford Rd., Baltimore, soon lets contract, concrete, steel, masonry church, parking area. $500,000. Taylor & Fisher, 1012 N. Calvert St., Baltimore, archts. C. M. Squot, 1012 N. Calvert St., Baltimore, struct. engr. McNeil & Baldwin, 2326 N. Charles St., Baltimore, mech. engrs.

▲ **N. J., Newark**—PLANT, etc.—Albert Kahn Associated Architects & Engineers, Inc., archt., 345 New Center Bldg., Detroit, Mich., soon lets contract, tank modification plant and processing depot for Chrysler Corp., 341 Massachusetts Ave., Detroit, Mich. $3,000,000.

N. Y., Hempstead—CHURCH—Our Lady of Loretto Catholic Church, Greenwich and Angevine Sts., soon lets contract church. $825,000. A. F. Meissner, 90-50 Parsons Blvd., Jamaica, archt.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

General Contr. & Eng. Co., 120 Greenwich St., New York 6, N. Y. CA. **$112,134,** repairing, replacing piles in Columbia St. Pier, Cont. GT-120.002, BROOKLYN, N. Y. Port of New York Auth., 111 8th Ave., New York 11, N. Y. Bids Mar. 3. CD 2/9.

▲ **Racquette Constr. Co.,** Potsdam, N. Y., CA. Approx. $4,000,000. 20,250 kw. hydro-electric GENERATING STATION, at Five Falls, POTSDAM, N. Y. Niagara Mohawk Power Corp. 250 Park Ave., New York 17, N. Y., CD 6/6.

NEW JERSEY and PENNSYLVANIA—Delaware River Joint Toll Bridge Comm., Administration Bldg., Morrisville, Pa.

Brookfield Constr. Co., Inc., 521 Fifth Ave., New York, N. Y., LB. **$477,993** rein.-con. bridge decks for 3 bridges across Delaware River at Delaware Water Gap Pa., Portland, Pa. and Milford, Pa., Contracts 102, 203 and 303. Bids Mar. 5. CD 2/27.

NEW JERSEY—New Jersey Hy. Auth., State Hy. Dpt. Office Bldg., 1035 Parkway Ave., Trenton.

S. J. Groves & Sons Co., P.O. Box 85, Woodbridge, N. J., LB, **$333,656,** Contr. 9 grading, drainage Garden State Parkway Section 10 from Oyster Creek to vicinity of Pinewald Rd. Lacey and Berkeley Twps., Ocean Co.; LB **$495,998,** Contr. 10, grading, drainage, Garden State Parkway, Section 10 from Old Shore Rd. to vicinity of Oyster Creek, Lacey, Union, Ocean and Stafford Twps., Ocean Co. Bids Mar. 12. CD 2/20.

John O. Morris Co., 206 Beacon Ave., Jersey City, N. J. LB. **$111,992,** electrical work, hy. lighting and signs for Sections 6, 7, 8 and 9, Route 4 from Centennial

$1,000,000-$3,000,000. Frederick R. Harris, Inc., 27 William St., New York, Zone 5, engr. CD 9/10.

† **N. Y. Rome**—NAVIGATION AIDS, etc.—Bids Asked—U. S. Eng., 80 Lafayette St., New York, Zone 13, navigation aids and transmitter bldg., Griffiss Air Force Base. $100,000. Alexander D. Crossett, 27 William St., New York, Zone 5, engrs. CD 9/14/51.

BIDS ASKED—BUILDINGS

† **D. C., Wash.**—LABORATORY—B.A. 4/1—Dist. P. Wks. Office, Potomac River Naval Command, Naval Gun Factory, 2 story chemistry laboratory, 1 story laboratory Naval Research Laboratory, Bellevue, Contr. NOY 75399. Plans deposit $30. Extended date. CD 2/18.

▲ **Md., Annapolis**—SCHOOL—B.A. 4/2—Anne Arundel Co. Bd. Educ., 207 Hanover St., 1 story, 70x735 ft., brick Brooklyn Park Junior Senior High School, 57x160 ft. auditorium, 80x110 ft. gymnasium, Brooklyn Park. $3,000,000. Plans deposit $50. Harder & Dressell, Glen Burnie, archts. CD 1/28.

Md., Baltimore—HOUSING—B.A. 4/2—Baltimore Housing Auth., 709 E. Eager St., First Phase, clearing, demolition for Pratt Street Housing. Plans deposit $10. Wrenn, Lewis & Jencks, 113 W. Mulberry St., archts. Alexander S. Cochran, 411 N. Charles St., assoc. archt. CD 2/4.

▲ **Pa., Phila.**—HOSPITAL—B.A. 5/6—General State Auth., 18 and Herr Sts., Harrisburg, hospital bldg. and doctors' and nurses' quarters for Eastern Pa. Psychiatric Institute. $7,000,000. Plans deposit $100. Extended date. Harbeson, Hough, Livingston & Larson and Harry Sternfeld, 1501 Architects Bldg., archts. A. F. Jones, c/o owner, ch. engr. CD 3/17.

† **N. Y., Buffalo**—ARMORY—B.A. 5/26—U. S. Eng., 80 Lafayette St., New York, Zone 13, ORC armory. $100,000-$500,000. Extended date. Wright & Kremers, Inc., Niagara Falls, archts. CD 1/22.

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John O. Morris Co., 206 Beacon Ave., Jersey City, N. J. LB. **$111,992,** electrical work, hy. lighting and signs for Sections 6, 7, 8 and 9, Route 4 from Centennial

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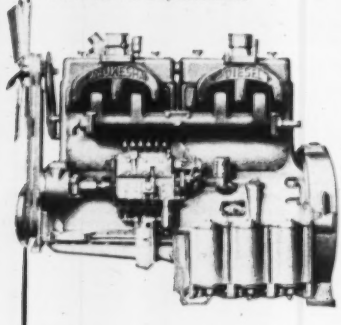
6-WAKD WAUKESHA
Super Duty DIESEL
6-cyl., 6¼-in. bore x 6½-in. stroke,
1197 cu. in. displacement.



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to Morris Aves., Union and Kenilworth Twps., Union Co., NEW JERSEY. State Hy. Dpt., State Hy. Office, 1035 Parkway Ave., Trenton, N. J. Bids Mar. 10. CD 2/16.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore.

C. H. Lawson, Williamsburg, Va. LB $76,107, double span, 35 ft., 35 ft., steel beam bridge, concrete deck piers, abutments, on timber piers over Hanson Creek, near Camp Springs, Cntr. P 705-1-317, Prince Georges Co. Bids Mar. 10. CD 2/26.

Pittsburgh-Des Moines Steel Co, Neville Island, Pittsburgh, Pa. LB, $694,000, installing incinerator equip. and materials of Incinerator No. 4, Pulaski Hy Plant, 2 stock, 12x190 ft., 4 furnaces, flues, stokers, oil burners, BALTIMORE, MD. City, Bureau Bldg. Constr., 410 Municipal Bldg. Baltimore 2, Md. Bids Mar. 11. CD 2/26.

Baltimore Paving Co., 2600 N. Longwood St., Baltimore, Md. LB, $135,768, playground, School 410, BALTIMORE, MD. City, Bd. Educ., 3 E. 25 St., Baltimore, Md. CD 11/17/50.

Curtin & Johnson, Inc., 116 "W" St. N.E., Wash., D. C., LB, $187,740, est. $175,000 imprv. various roadways with c. conc. pavements;

Circle Paving Co., 657 "A" St. S.E., Wash., D. C., LB, $74,793, c. conc. alleys and sidewalks various locations, WASH., D. C. D.C. Govt. 499 Pa. Ave. N.W., Wash., D. C. Bids Mar. 6. CD 3/7.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Ole Hansen & Sons, Inc., Old Turnpike and Franklin Ave., Pleasantville, N. J., CA, Approx. $2,000,000, 200x720 ft. mfg. PLANT, Tilton Rd., COLOGNE, N. J. Lenox, Inc., Prince and Mead Sts., Trenton, N. J. H. F. Everett & Assocs., Commonwealth Bldg., Allentown, Pa., archts.

▲ M. DeBartolo Constr. Co., 216 Alexander St., Youngstown, O. Owner Builds. $2,500,000. SHOPPING CENTER, incl. 30 stores, Sharon-Mercer Hy., on 58 acre site 1 mi. from Sharon City limits, SHARON, PA.

Shuman & Rice, 7 Central Ave., Glen Burnie, Md. Owner Builds. $600,000. sixty-seven 1½ story, bsmnt., 32x32 ft., brick RESIDENCES, 13 acres, GLEN BURNIE, MD. CD 3/22/51.

W. E. Bickerton Constr. Co., 101 W. 22 St., Baltimore, Md. LB, $324,000, brick, block, steel North Point High SCHOOL addn., auditorium, TOWSON, MD. Baltimore Co., Bd. Educ., Court House, Towson, Md. Bids Mar. 10. CD 9/10/52.

Kirby & McGuire, Inc., 2513 Greenmount Ave., Baltimore, Md. CA $689,540, 2 story, masonry elementary SCHOOL, Dundalk, TOWSON, MD. Baltimore Co., Bd. Educ., Aigburth Rd., Towson, Md. CD 3/9, under LB.

▲ Standard Constr. Co., 1010 Vermont Ave. N.W., Wash., D. C. CA $3,574,879, Section 1, HOUSING Project DC 1-18, East Capitol Dwelling, E. Capitol and 58 St. N.E. Wash., D. C. National Capitol Housing Auth., 1728 L St. N.W., Wash., D. C. Bids Feb. 10. CD 2/12, under LB.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

† Va., Little Creek—FENCES—B.A. 3/31-P. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk, Zone 11, security fences, U. S. Naval Amphibious Base, NOY 78221, Spec. 37648. Plans deposit $10.

† Tenn., Memphis—HANGAR—B.A. 4/1—Dpt. Navy, Office in Charge of Construction, Naval Base, Charleston, S. C. maintenance and operations hangar (Memphis type), U. S. Naval Air Station, NOY 71563. Extended date. CD 2/26.

† Fla., Key West—B.A. 4/9—Dpt. Navy, Officer In Charge of Construction Naval Base, S.C., resurfacing roads U.S. Naval Station, NOY 76248. Plans deposit $10.

Ky., Elizabethtown—B.A. 4/14—City impev. present water sys. Plans deposit $25, J. Stephen Watkins, 251 E. High St., Lexington, engr. CD 6/27/50.

† Miss., Biloxi—ELEVATORS—B.A. 4/21—Veterans Admin., Munitions Bldg., Wash., D. C., replacement of elevators Bldg. 1 for Veterans Admin. Center. CD 10/25/46, under Public Buildings.

BIDS ASKED—BUILDINGS

† Va., Yorktown—PLANER etc.—B.A. 4/7—P. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk Zone 11, planer bldg., dry kiln bldg., lumber storage yard and appurtenant work at U. S. Naval Mine Depot, NOY 72471, Spec. 33647. Plans deposit $10.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

VIRGINIA—State Hy. Dpt., 1221 E. Broad St., Richmond.

Atlantic Bitulithic Co., 1400 Roseneath Rd., Richmond, Va., LB $177,497, water bound macad. bit. top, 0.81 mi. four lane, Rte. 33, Proj. 1943-03-04, Henrico Co.;

Burkholder & Burkholder, Lynchburg, Va., LB $91,337, b. conc. 0.38 mi. and 145 ft. bridge, Rte. 15, Proj. 1832-03-04, Fluvanna Co.;

Garrett, Moon & Pool, Blackstone, Va., LB $160,421 water bound macad., bit. top 0.81 mi. Picadilly St., Proj. 3634-01, Frederick Co.;

Pendleton Constr. Co., Wytheville, Va., LB $439,100, water bond macad. pen. top 2.04 mi. Rte. 11, 2-lane, Proj. 1698-05-02, Wythe Co.;

(Continued on page 117)

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To prepare for future bids, talk to your Indemnity Agent. Ask him to establish your credit line with Indemnity Insurance Company of North America, the largest independent, offering lowest bond rates* to contractors of *skill, integrity* and *responsibility*.

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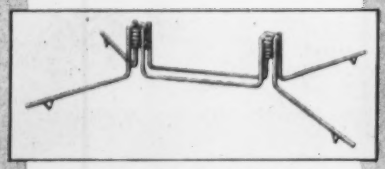
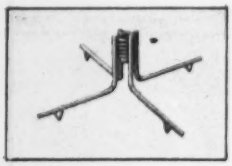
3 NEW SUPERIOR ACCESSORIES

for more efficient handling of...

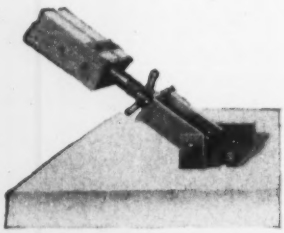
"TILT-UP" SLABS



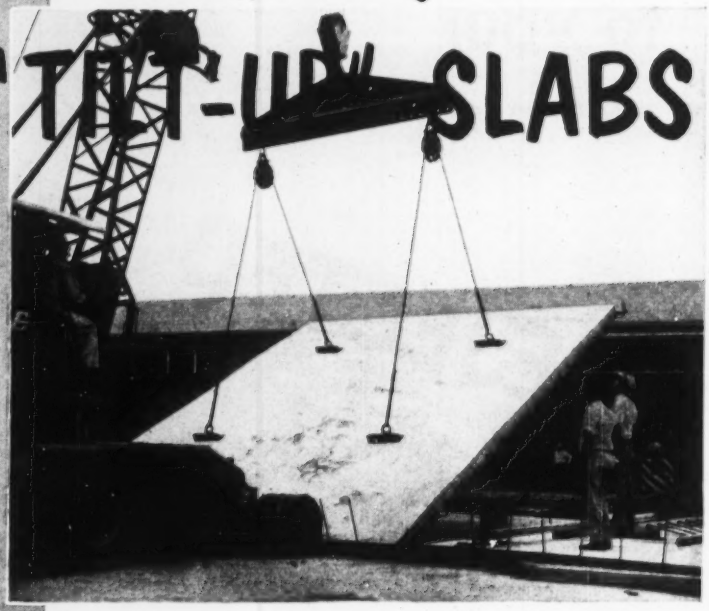
"PICK-UP" INSERT with two 1" coil bolts, will safely lift a load of 11,000 lbs. when embedded in 3,000 lb. concrete slabs.



"ANCHOR" INSERT in both the "Tilt-Up" slab and the floor slab provides anchorage for slab brace bolts.



SLAB BRACE for temporary anchorage is quickly installed and adjusted. Has exclusive pivoting action.



Are you bidding on a "Tilt-Up Slab" job? Are you starting a "Tilt-Up Slab" Job? Then you will be interested in Superior's three new accessories, designed for faster and more efficient handling of precast panels.

The Superior *"Pick-Up" Insert* provides dependable anchorage for bolts to which slings are attached when the panel is raised. *"Anchor" Inserts* in both the "Tilt-Up" slab and the floor slab secure the temporary bolts to which the braces are attached. With Superior's adjustable and pivoting *Brace* you have an efficient as well as inexpensive answer to both ordinary and unusual bracing problems . . . you merely assemble with 2 x 4's of lengths to fit individual jobs.

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Pacific Coast Plant
2100 Williams St., San Leandro, Calif.

(Continued from page 114)

A. C. Shearer Co., Chapel Hill, N. C., LB **$69,818,** soil-cement, bit. surf. tr. 6.26 mi. Rte. 623, Proj. 1319-05, Charlotte Co.;

D. E. Worley Constr. Co., Rocky Mount, Va., LB **$109,533,** stabil. base, bit. surf. tr. 6.41 mi. Rte. 602, Proj. 1333-05, Franklin Co. Bids Mar. 12. CD 3/5 and 3/3.

▲† **J. L. Coe Constr. Co.,** Builders Bldg., Charlotte, N. C. LB **$1,194,737,** admin. bldg., parachute bldg., crash facilities, magazines and line operations bldg., Naval Air Station, NOY 75691, OCEANA, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Va. Bids Mar. 10. CD 2/18.

† **U. S. Eng.,** 200 E. St., Julian St., Savannah, Ga., rejected bids Feb. 19, aircraft maintenance shop, Moody Air Force Base, Inv. 53-25, VALDOSTA, GA. LB, **$210,059.** CD 2/26, under LB.

† **T. Miller & Sons,** Chavanne Bldg., Box 921, Lake Charles, La. LB **$416,508.** Chapel, dental clinic, officers' mess, pertinent outside utilities, Lake Charles Air Force Base, Eng. 41-343-53-92, LAKE CHARLES, LA. U.S. Eng., Box 1229, Galveston, Tex. Bids Mar. 10. CD 3/4.

† **U. S. Eng.,** 303 Federal Office Bldg., Nashville 1, Tenn., cancelled bids to have been opened Mar. 30, constr. 100,000 k.w. Old Hickory Hydroelectric Power Plant, Cumberland River, Davidson Co., CIVENG 40-058-53-31, TENNESSEE. CD 1/21.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **G. & R. Constr. Co. Inc.,** 821 9th St. N. W., Wash. D.C., CA. Approx. **$5,000,000.** 626 row type 2 story, bsmnt., brick veneer RESIDENCES, 1st. sect. of 171 units to start soon, ALEXANDRIA, VA. Warwick Village, Inc., c/o contractor, E. W. Syme, 552 Washington Bldg., Wash., D. C., archt.

▲ **City and Suburban Homes Corp.,** 3209 Columbia Pike, Arlington, Va. Owner Builds. **$2,500,000.** 151 two-story bsmnt., brick, concrete masonry RESIDENCES, Belvedere Proj., near FAIRFAX, VA. Frank Martinelli, 1164 19th St. N. W., Wash., D. C., archt.

† **U. S. Eng.,** 308 Customhouse, Wilmington, N. C. cancelled bids to have been opened Mar. 10, HEATING PLANT bldg., ENG-31-075-53-16, FORT BRAGG, N.C. CD 2/27.

A. J. Jarrell, Salisbury, N. C. CA. **$225,000,** TOBACCO AUCTION HOUSE U. S. Hy. 74, ¼ mi. southeast of city limits, LUMBERTON, N. C. Co-operative Warehouse, Inc., C. E. McLaurin, mgr., Lumberton, N. C.

R. E. Dunn Co., 207 12 Ave. S., Nashville, Tenn. LB **$347,497.** HOUSING, Proj. Ky 11-2, HOPKINSVILLE, KY. Hopkinsville Municipal Housing Comm., P.O. Box 437, Hopkinsville, Ky. Bids Mar. 10. CD 2/24.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Wis., Genoa**—REARING PONDS, etc.—B.A. 3/31—Fish & Wildlife Service, 1006 W. Lake St., Minneapolis, Minn. fish rearing ponds, pipe lines and concrete kettles, Genoa Fish-Cultural Station.

Michigan—B.A. 4/1—State Hy. Dpt., Charles M. Ziegler, comr., 222 Townsend St., Lansing, water and sewerage sys. alterations, John C. Lodge Expressway, north Labrosse St. and south of Abbott St., Detroit. $140,000.

O., Athens—B.A. 4/8—State Dpt. P. Wks., State Dpts. Bldg., Columbus, renewing water lines in bsmnt., renewing sanitary sewer in sub-bsmnt. of Athens State Hospital.

BIDS ASKED—BUILDINGS

▲ **O., Columbus** — MEMORIAL HALL — B.A. 3/31 — Franklin Co. Veterans Memorial Bd. Trustees, Columbus, Memorial Hall, $3,200,000. Extended date. CD 12/1.

O., Waverly—HOUSING—B.A. 4/2—Public Housing Admin. Wm. E. Bergeron, dir. 201 N. Wells St., Chicago, Ill., furnishings, erection 250 prefabricated dwelling unit bldg., laundry, maintenance, management and community bldg., roads, parking areas, sidewalks, exterior sewer and water lines. Proj. OH 1-D-1. Plans deposit $25. J. Fletcher Lankton-John N. Ziegle & Assoc., 1100 Main St., Peoria, Ill., engrs.-archts.

▲ **Ill., Lemont**—GENERATING STATION—B.A. 4/3—Public Service Co. of Northern Illinois, 72 W. Adams St., Chicago, Zone 3, superstructure for generating station. $60,000,000. Sargent & Lundy, 140 S. Dearborn St., Chicago, 3, Ill., engrs. CD 2/2/51.

Wis., Antigo—GYMNASIUM, etc.—B.A. 4/4—Bd. of Duc., Antigo, gymnasium and recreation bldg. $425,000. E. A. Stubenrauch, 712 Erie Ave., Sheboygan, archt. CD 11/18.

Mich., Berkley—SCHOOL—B.A. 4/7—City, M. P. Anderson, supt. Schools, 2325 Catalpa St., 2 story, bsmnt., brick, steel, concrete high school addn. $670,000. Earl G. Meyers, 806 Farwell Bldg., Detroit, archt. CD 12/1.

Ind., Evansville—HOSPITAL—B.A. 4/8—St. Mary's Hospital, 173 First Ave., 6 story, concrete, masonry hospital. Maguolo & Quick, 4908 Delmar Blvd., St. Louis., Mo., engrs. and archts. CD 10/2.

▲ **O., Maumee**—SHOPPING CENTER—B.A. 4/10—Southgate Commercial Center, Inc., c/o Cooley Ellis, 1116 Madison St., Toledo, 1 and 2 story, 200,000 sq. ft. shopping center, incl. parking lot Detroit Ave. and Wayne Trail. $3,000,000. Stephen Jokel, 905 Jefferson St., Toledo, archt. CD 1/6.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **City,** City Hall, Cleveland 14, O., rejected Bids Mar. 5, reconstr. W. 25 St. bridge over Train Ave., incl. 100 ft. new concrete paving at each end, CLEVELAND, O. Est. **$1,250,000.** CD 2/20.

† **Simpson Constr. Co.,** 235 N. Ogden St., Chicago, Ill. LB **$121,800,** est. $127,000, bio-physics bldg., 3rd floor addn., Wright-Patterson Air Force Base, Serial No. ENG-15-029-53-38, DAYTON, O. U. S. Eng., 830 W. Broadway, Louisville 3, Ky. A. M. Kinney, Inc., 2905 Vernon Pl., Cincinnati, O., archt. Bids Mar. 11. CD 2/13.

Westwood Constr. Co., 7305 Detroit Ave., Cleveland, O., CA. **$266,029,** Est. $300,000. Swimming pool on site in Lakewood Park, LAKEWOOD, O. City, City Hall, Lakewood Park, O. Bids Feb. 20, awarded Mar. 9. CD 1/29.

E. K. Bridge Constr. Co., 4502 Stengle St., Toledo, O. CA **$116,991.** imprv. Sherwood Ave. from Detroit Ave. to River Rd., TOLEDO, O. City, City Hall, Toledo, O. Bids Feb. 24, awarded Feb. 27. CD 12/30.

Davis Mfg. Co., Beverly Hills, Calif. CA **$60,000.** Contr. 80 A, two 48 in. and one 42 in. ball valves for North Side trunk main, TOLEDO, O. City Comr. Purchases, Room 324, Safety Bldg., Toledo, O. Bids Jan. 13. CD 1/6.

Raleigh Burk Co., 3815 Massachusetts Ave., Indianapolis, Ind. LB, **$923,172,** E. 37 and E. 38 St. main relief sewer, INDIANAPOLIS, IND. Bd. P. Wks., 104 City Hall, Indianapolis, 4, Ind. Bids Mar. 12. CD 2/12.

ILLINOIS—State Div. Hys., Springfield, rejected bids Feb. 26, 2 bridges Ill. Route 146, Hardin Co., LB, **$195,809;** one bridge, one box culvert channel change and earth approaches on U. S. Rte. 45, Johnson Co., LB, **$148,898.** CD 3/3, under LB.

ILLINOIS—State Div. Hys., Springfield, **H. H. Mass Constr. Co.,** Algonquin, Ill. CA **$678,822** hy. bridge on Ill. 49 in Kankakee, Kankakee Co. Bids Feb. 27, awarded Mar. 12. CD 3/3, under LB.

ILLINOIS—State Div. Hys., Springfield, rejected bids Feb. 27, bit. and c. conc. base course widen. 5.98 mi. Ill. Rte. 83, Cook Co., LB, **$267,322.** CD 3/3, under LB.

Gallagher Asphalt Co., 181 St. and Indiana Ave., Thornton, Ill., LB, **$65,401,** general road construction at Manteno State Hospital, MANTENO, Ill. State, State Capitol, Springfield, Ill. Bids Mar. 3.

WISCONSIN—State Hy. Comn., State Hy. Office Bldg., Madison,

Mathy Constr. Co., 508 Hoeschler Bldg., La Crosse, Wis. CA, **$581,841,** Contr. 1, b. conc. 16.29 mi. Tomah-North Co. Line, South Co. Line-Black River Falls and Black River Falls-North County Line Rds. S.T. Hy. 27 and U.S. Hy. 12, Projs. T 06-3 (12), (8) and (9), Monroe and Jackson Counties. CD 3/13, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **A. Bentley & Sons Co.,** 201 Belmont St., Toledo, O. CA Est. **$2,000,000.** General contract 1 story, steel, reinforced cement, 225,000 sq. ft. FACTORY, Stickney Ave., TOLEDO, O. Electric Auto-Lite Co., Champlain St., Toledo, O. Awarded Mar. 3.

George W. Lathrop & Sons, Inc., 1510 Montcalm St., Toledo, O. CA 1 story, 184x600 ft. FACTORY, 45x100 ft. bsmnt., 14 ft. below first floor of another area of same plant, east end of present laminating plant, on E. Broadway, TOLEDO, O. Libbey-Owens-Ford Glass Co., Nicholas Bldg., Toledo, O. Awarded Feb. 24.

Owen Ames Kimball Co., 38 Pearl St. N.W., Grand Rapids, Mich. CA Est. **$150,000.** 15,000 sq. ft. WAREHOUSE on 4 acre site at Dorr and Westwood Sts., incl. garage, TOLEDO, O. Hekman Biscuit Co., 310 28 St. S.E., Grand Rapids, Mich. Awarded Feb. 26.

▲ **A. Bentley & Sons Co.,** 201 Belmont St., Toledo, O., CA Approx. **$4,000,000.** building for GENERATING STATION, east of Harbor View, to hold 135,000 Kw. generator and other equip., TOLEDO, O. Toledo Edison Co., Edison Bldg., Toledo, O. CD 11/11/52.

Jennings & Churella, New London, O., CA **$314,267,** general constr. SCHOOL addn., WELLINGTON, O. Bd. Educ., Wellington, O. CD 12/12.

Lloyd Bros Co., 444 Walnut St., Wooddale, Ill., CA **$400,000,** HOME for old People, Elmhurst St., BENSONVILLE, ILL. Bensonville Old People's Home, Bensonville, Ill. Bids Feb. 24, awarded Mar. 10. CD 2/19.

Gerhardt F. Meyne Co., 7 S. Dearborn St., Chicago, 3, Ill., CA, **$567,973.** 1 story, bsmnt., 122x308 ft. WAREHOUSE and OFFICE, LINCOLNWOOD, ILL. Chicago Musical Instrument Co., 30 E. Adams St., Chicago, 3, Ill. Awarded Mar. 9. CD 12/30, under LB.

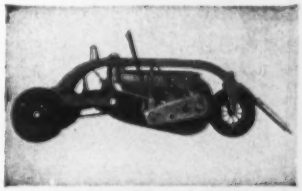
Robt. G. Regan, 25 N. Ottawa St., Joliet, Ill., CA, **$950,616,** 1 and 2 story, 145x660 ft. Lincoln-Way High SCHOOL, near NEW LENOX, ILL. School District 210, Barber Bldg., Joliet, Ill. Bids Feb. 18, awarded Mar. 6. CD 2/26, under LB.

Greene & Gust, 1635 Grace St., Chicago, Ill., LB **$534,400,** HOUSING Project Wis 2-D-1, BARABOO, WIS. Public Housing Admin., 201 N. Wells St., Chicago, Ill. Bids Mar. 5. CD 2/10.

Fifteenth Boulevard Corp., 2420 W. Grand Blvd., Detroit, Mich. Owner Builds. **$140,000.** 2 story, brick, concrete block STORAGE and SERVICE, W. Grand Blvd., DETROIT, MICH.

Herlihy Constr. Co., Comstock, Mich. CA **$981,371.** brick, steel, glass 45,000 sq. ft. Harlow H. Curtice COLLEGE UNIT, Gilkey Creek, FLINT, MICH. Flint

GRACE
Asphalt and Compaction Equipment



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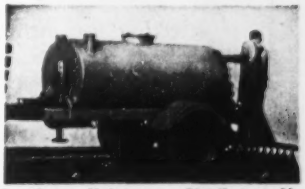

Rapidspray Maintenance Distributors. Also heaters for production melting of barreled asphalt.

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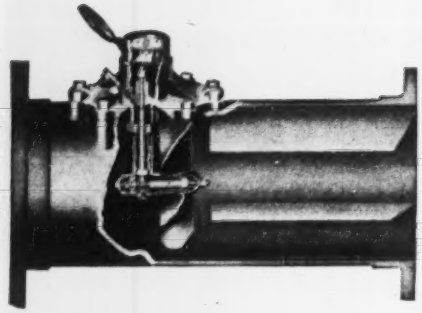

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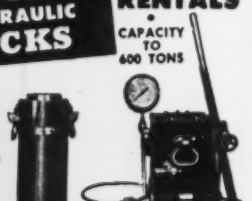

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TRAILER VILLAGE SALES, INC.
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Phone: Essex 2233

Junior College, W. Fred Totten, pres., Flint, Mich. Bids Mar. 5. CD 2/12.

▲ **Herlihy Constr. Co.**, Comstock, Mich. GA $1,481,646. 3 story, bsmnt., 228x480 ft. SCIENCE and APPLIED ARTS BLDG., Chas. Stewart Mott Bldg., Gilkey Creek, FLINT, MICH. Flint Junior College, Bd. Educ., Flint, Mich. Bids Mar. 5. CD 2/12.

▲ **O. W. Burke Co.**, 1032 Fisher Bldg., Detroit, Mich. LB $1,677,700, general contract.

Stanley-Carter Co., 13540 Linwood St., Detroit, Mich. LB $449,176. heating contract, four 1 story PSYCHOGERIATRIC BLDGS., Northville State Hospital, NORTHVILLE, MICH. State, A. N. Langlus, dir. State Bldg. Dpt., Lansing, Mich.

Cunningham-Limp Co., 3087 W. Grand Blvd., Detroit, Mich. CA Est. $250,000. 1 story, brick, concrete PLANT, ROCHESTER, MICH. Detroit Broach Co., Inc., 20201 Sherwood St., Detroit, Mich. CD 2/25.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

Neb., Bellevue—B.A. 3/31—City, paving in 17 paving districts. $261,000. Kirkham-Michael & Assoc., 1504 Dodge St., Omaha, engrs. CD 12/19.

† **Tex., Amarillo**—FACILITIES—B.A. 4/2—U. S. Eng., Box 61, Tulsa, 2, Okla., Facilities "E" Amarillo Air Force Base, ENG-34-066-53-101. $750,000. Extended date. CD 3/4.

† **Tex., Sherman**—MAINTENANCE and TRAINING FACILITIES—B.A. 4/2—U. S. Eng., Box 61, Tulsa 2, Okla. maintenance and training facilities, incl. electric and base maintenance shop, training aids shop Perrin Air Force Base, Inv. No. ENG 34-066-53-92. Extended Date. CD 2/9.

† **Texas**—B.A. 4/6—Soil Conservation Service, Dpt. Agriculture, 3600 McCart St., Fort Worth. (117-53) waterflow retarding structures, incl. earthfill embankments, etc. approx. 4 mi. north and 9 mi. west of Kaufman; (118-53) waterflow retarding structures, construct earthfill embankments, approx. 4.5 mi. to 5 mi. south and 6 to 8 mi. west of Kaufman on Lower East Fork laterals, Trinity Watershed; (119-53) waterflow retarding structures of earthfill embankments, etc., approx. 2 to 3 mi. north and 8.5 mi. to 9 mi. west of Kaufman; (120.53) waterflow retarding structures, earthfill embankments, etc. on Lower East Fork laterals, Trinity Watershed, approx. 8 to 9 mi. west of Kaufman, Kaufman Co.

Neb., Seward—B.A. 4/7—City, street imprvs. $70,680. Henningson, Durham & Richardson, Standard Oil Bldg., Omaha, engrs.

Ia., Newton—B.A. 4/9—City, City Hall, outfall sewers and sewage plant imprvs. $125,000. Stanley Eng. Co., Hershey Bldg., Muscatine, engr.

Tex., Bryan—RURAL DISTRIBUTION LINES—B.A. 4/10—City, c/o Neah W. Dansby, secy., Bryan, approx. 4.21 mi. 3-phase rural distr. tie lines and approx. 12.62 mi. of conversion single phase to 3 phase and approx. 22 mi. 3 phase to single phase and removal of 1.01 mi. of 3 phase line. $62,000. Plans deposit $10. F. E. Woodruff, 407 Danciger Bldg., Fort Worth, engr. CD 3/3.

† **S. D., Fort Meade**—B.A. 4/21—Veterans Admin., Munitions Bldg., Wash., D. C., water supply for automatic sprinkler sys. for Veterans Admin. Hospital.

Tex., Houston — Bids Asked — Garden Oaks Plaza Corp., c/o A. R. Foster & Assocs., 2230 Albans St., water lines, facilities, in an extended section off N. Shepherd Dr., $35,000.

Tex., Houston—Bids Asked—Homes of Quality, Inc., 204 Winkler Dr., (b) water system, $37,000 Rayburn C. Shaner, 4019 River Dr., engr.

Tex., Houston—Bids Asked—Homes of Quality, Inc., 204 Winkler Dr., Houston (a) sewage disposal unit, $60,000 (c) storm sewer, $60,000 (d) sanitary sewers, $60,000. Rayburn C. Shaner, 4019 River Dr., Houston, engr. CD 3/12.

Tex., Houston—Bids Asked—Garden Oaks Plaza Corp. c/o A. R. Foster & Assocs., 2230 Albans St., Houston storm sewers, open drainage, $65,000; sanitary sewers, $65,000, in an extended section off N. Shepherd Dr. $65,000.

Tex., Houston—Bids Asked—Homes of Quality, Inc., 204 Winkler Dr., (e) excavating for sites and tracts areas (grading, leveling, open drainage), near here. $50,000. Rayburn C. Shaner, 4019 River Dr., engr.

Tex., Houston—Bids Asked—Homes of Quality, Inc., 204 Winkler Dr., street construction and asph. paving, near here. $65,000. Rayburn C. Shaner, 4019 River Dr., engr.

Tex., Houston—Bids Asked—Garden Oaks Plaza Corp., c/o A. R. Foster & Assocs., 2230 Albans St., street construction in an extended section off N. Shepherd Dr. $65,000.

BIDS ASKED—BUILDINGS

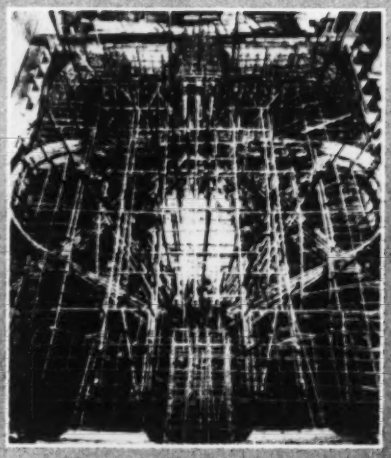
N. M., Roswell—HIGH SCHOOL—B.A. 4/2—Roswell School Dist., c/o Grady Southworth, Roswell, 1 and 2 story, 47x728 ft. brick, concrete block high school and gymnasium. $750,000. Plans deposit $100. Vorhees, Standhart & Swatek, 1607 W. 2 St.; archts.

▲ **Tex., Abilene**—SCHOOL—B.A. 4/13—Abilene Independent School Dist., Abilene, high school, $2,000,000. Plans deposit $75. Extended date. David S. Castle Co., Box 124, Abilene, Tex., engr. and archt. CD 3/9.

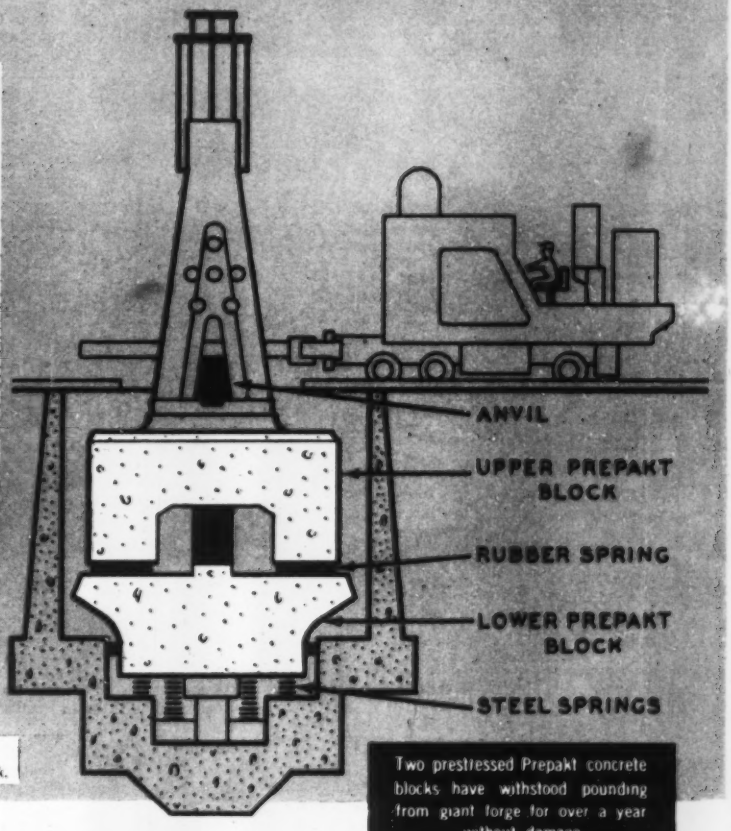
† **N. D., Fargo**—UTILITIES SHOP—B.A. 4/21—Veterans Admin., Munitions Bldg., Wash., D. C. Utilities Shops Bldg. 14, for Veterans Administration Center.

Colo., Denver—FACTORY—Bids Asked—Standard Furniture Mfg. Co., 2100 Humboldt St. 50,000 sq. ft.,

(Continued on page 121)



Prepakt method is simplest for placing concrete around intense reinforcement. Preplacing aggregate, then pumping voids completely full with Intrusion mortar produces high-strength, monolithic block.



Designed by: J. H. A. Crockett, Consulting Engr., London.
Tech. Supr., Construction: A. M. Klein, Robert W. Hunt Co., New York.

Two prestressed Prepakt concrete blocks have withstood pounding from giant forge for over a year without damage.

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(Continued from page 118)

brick, cinder block factory, $82,000. E. Floyd Redding, 7970 W. 10 Ave., Zone 15, engr. and archt.

SOON LETS CONTRACT—BUILDINGS

Tex., Houston—SHOP—Hughes Tool Co., 5425 Polk Ave., soon lets contract Part 3, constr. 50,000 sq. ft. Tool Joint Shop (Specialized), rein.-con. drilled footings, grade beam and slab. $500,000. Lockwood & Andrews, Union Natl. Bank Bldg., engrs. CD 2/19.

Tex., Houston—SEMINARY—St. Mary's Seminary 1018 Preston Ave., soon lets contract library and admin., $800,000; dormitory $450,000; power and heating plant, $90,000; sanctuary $350,000; refectory, dining hall, laundry $325,00; classroom bldg., $400,000; library-science $300,000. Maurice J. Sullivan, 3901 Travis St. archt. Reg. F. Taylor, Bankers Mortgage Bldg., and F. J. Niven, 3908 Main St., engrs. CD 2/25.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **C. Wallace Plumbing Co.**, Box 1209, Dallas, **Tex.** LB $1,271,806. central heating plant and distr. sys., Sedalia Air Force Base, Inv. 23-028-53-79, SEDALIA, MO. U. S. Eng., 601 Davidson Bldg., Kansas City 6, Mo. Bids Mar. 4. CD 2/3.

Forsgren Bros., 3023 N. 23 St. Ft. Smith, Ark., CA, $120,108, Section 1;
Tune Constr. Co., Fayetteville, Ark., CA, $180,284, Section 2;

Chicago Bridge & Iron Co., Hunt Bldg., Tulsa, Okla., CA, $79,800, Section 3, WW Imprvs., BENTONVILLE, ARK. Grand total $380,192. City, City Hall, Bentonville, Ark. Bids Feb. 27. CD 2/12.

▲ **SOUTH DAKOTA**—State Hy. Comn., Pierre.,
Summit Constr. Co., Rapid City, S. D., CA. $144,263, base course, blotter type bit. surf. 12.321 mi. Proj. S 248 (3), Bennett Co.;
C. H. Lien Constr. Co., Rapid City, S. D., CA. $224,465, base course, bit. surf. 12.024 mi. Proj. S 439 (5), Yankton Co.; CA. $167,488, blotter type bit. surf. 30.04 mi. Proj. FAP's 217A, E & F, Harding Co.; CA. $222,355, blotter type bit. surf. 34.984 mi. Proj. FAP's 243D, E & C (pt.), Butte Co.;
W. H. Noel Co., Jamestown, N. C., CA. $180,345. base course, bit. surf. 12.771, mi., Proj S 551 (4), Buffalo and Jerauld Counties;
Northwestern Eng Co., Rapid City, S. D., CA. $226,106, base course, bit. surf. 0.675 mi. Proj. F 221 (10), Lawrence Co.;
P. A. Bradbury Constr. Co., Wylie Park Rd., Aberdeen, S. D. CA. $111,594, base course repairs, bit. surf. 6.423 mi. Proj. F 221 (14), Lawrence Co. Grand total $1,276,616. Bids Mar. 10. CD 2/27.

Abel Constr. Co., 1815 "Y" St., **Dobson Bros.**, 512 First Natl. Bank Bldg., and **Dobson & Robinson**, 823 First Natl. Bank Bldg., Lincoln, Neb., CA. $129,333, paving, utilities, municipal airport, LINCOLN, NEB. City City Hall, Lincoln, Neb., D. L. Erickson, city engr. Bids Mar. 11. CD 11/18.

KANSAS—State Hy. Comm., Hutchinson,
Swenson Constr. Co., 3305 Terrace St., Kansas City, Mo. CA. $76,029. Bridge Sta. 5 plus 00, 42 ft., 48 ft., five 50 ft., 48 ft., 42 ft. continuous I-beam spans, Proj. 4 S 1065 (1), Barber Co.;
Freeto Constr. Co., Inc., Pittsburg, Kan. CA. $117,474. bridge Sta. 13 plus 02.5 63.5 ft., four 87 ft., 63.5 ft. continuous steel beam spans, Proj. 96 ER 87, Sumner Co.;
Inland Constr. Co., 3867 Leavenworth St., Omaha, Neb. CA. $100,114. Bridge No. 1 Sta. 146 plus 10, 35 ft., 45 ft., 35 ft. continuous rein.-con. slab spans, Bridge No. 2 Sta. 207 plus 00, four 12x9x99 ft. rein.-con. box 48 ft. roadway, Proj. AD 2 (1), Part II, Sedgwick Co. Grand total $293,617. Bids Mar. 6. CD 2/20.

KANSAS—State Hy. Comn., Hutchinson,
Peter Kiewit Sons' Co., Airport P.O., Wichita, Kan. CA. $418,009. c. conc. 1.895 mi., Proj. AD 2 (1) Part II, Sedgwick Co;
Harry Henery, Inc., Ottawa, Kan. CA. $116,944, base course, single asph. surf. tr. 5.925 mi. Proj. 15-18 F 047-1 (3), Cowley Co.;
J. H. Shears' Sons, Inc., Hutchinson, Kan. CA. $98,479, sheet asph. surf. course 2.401 mi. Proj. 50S-78 K 5189. (1), Reno Co.;
Inland Constr. Co., 3867 Leavenworth St., Omaha, Neb. CA $63,327. grading, base and dense graded surf. course 1.49 mi., Proj. 87 AD 1, Sedgwick Co.;
Sherwood Constr. Co., Inc., P.O. Box 994, Wichita, Kan. CA. $222,657. grading 14.714 mi. Proj. 54-87 K 5156 (1), Sedgwick Co. Grand total $909,416. Bids Mar. 6. CD 2/20.

† **D. C. Bass & Sons Constr. Co.**, Bass Bldg., Enid, Okla. LB $133,736, est. $200,000. Academic bldg., Vance Air Force Base, ENG 34-066-53-99, ENID, OKLA. U. S. Eng., Box 61, Tulsa 2, Okla. Bids Mar. 5. CD 2/26.

▲† **Shaw & Estes**, 1407 S. Akard St., Dallas, Tex., CA $1,679,882. 10 test cells conversion, Inv. No. (IFB) 34-601-53-352, Tinker Air Force Base, OKLAHOMA CITY, OKLA., U. S. Govt., c/o Direc. of Procurement & Production, Tinker Air Force Base, Oklahoma City, Okla. Bids Mar. 6, awarded Mar. 12. CD 6/4.

Cushing Constr. Co., Woodbine, Ia., LB. $302,058, est. $360,000. 529 mi. rural pole telephone lines, Dallam Co., TEXAS, XIT Rural Telephone Co-operative, Inc., Dalhart, Tex. Bids Mar. 3. CD 2/26.

City, City Hall, Dallas, Tex., Purchases, Day Labor. $39,000, water main line to tie into Casa View Oaks Subdivision Force Account, $37,000 some c.i. water lines, Forrest Hills and Scyene Rd., DALLAS, TEX. CD 11/21/51.

(Continued on page 125)

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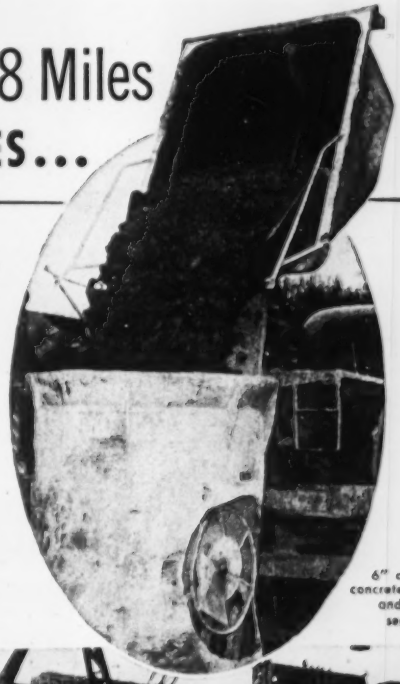
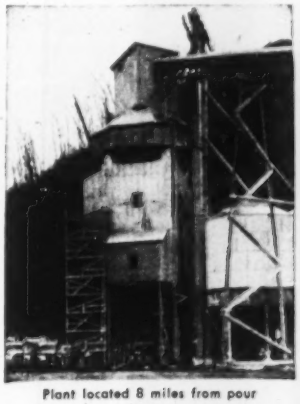
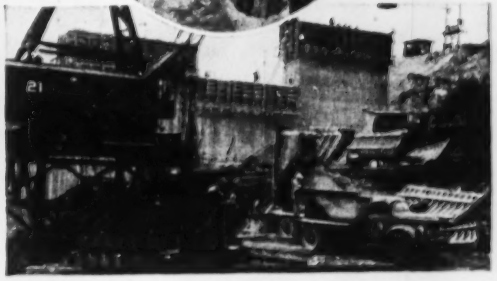


6" aggregate concrete uniform and with no segregation



Plant located 8 miles from pour



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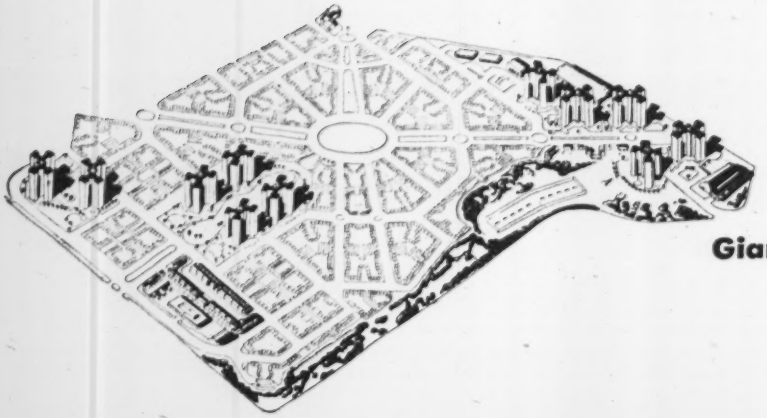
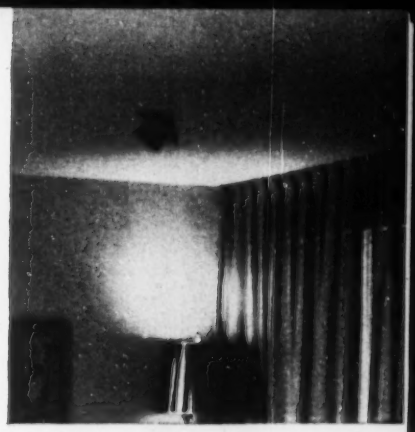


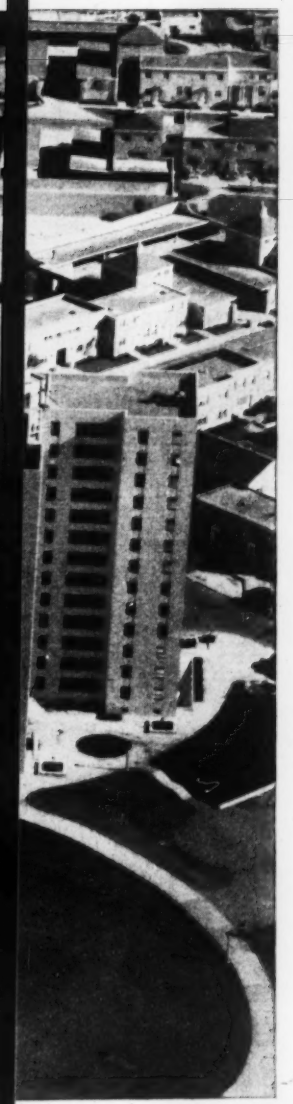
Giant apartment project demonstrates

Situated in park-like 200-acre tract, development consists of eleven 13-story cross-shaped units, 110 2-story colonial units. Plywood forms were used for all concrete.

THREE KEY ADVANTAGES OF FIR PLYWOOD FORMS



Plywood-formed ceilings were painted after grinding, spackling.



1. SMOOTH, FIN-FREE CONCRETE

On this modern housing development, fir plywood forms were used for (1) all exterior and interior wall surfaces and (2) reinforced concrete ceiling slabs. Result: Walls are smooth, dense, uniformly attractive; ceiling slabs were smooth enough to be painted direct after grinding and application of spackling compound—permitting a substantial savings by eliminating expensive plastering.

2. ECONOMY THROUGH RE-USE

Large built-up forms of Exterior plywood (see specification data below) were used 13 times on the 13-story tower buildings, eliminating form re-building as pouring progressed. After use on the large buildings, many of the plywood form panels were re-used, in some cases, an additional 8 to 10 times on the 2-story buildings which dot the 200-acre tract.

3. 20% TIME AND LABOR SAVINGS

According to estimates of engineers on the job, use of built-up plywood forms afforded a 20% savings in time and application costs over the cost of lumber forms—plus savings in finishing time and cost of both ceilings and exterior walls. Even on interior walls where appearance was no factor, time and labor savings plus re-use made plywood the most economical material.

PLYWOOD FORM SPECIFICATIONS:

These registered industry trademarks are your guide, guard and assurance of DFPA quality-tested fir plywood manufactured especially for concrete form work. INTERIOR PLYFORM (highly moisture-resistant glue) gives multiple re-use; up to 12-15 are not unusual. For maximum re-use, specify EXTERIOR PLYFORM (100% waterproof glue). For special architectural concrete use fir plywood with "A" face veneer (such as used for exterior walls and ceilings on project described above) or one of the new plastic-surfaced or hardboard faced fir plywoods identified by this star and link industry hall mark of quality.

A Product of the Plywood Industry

For further information write Douglas Fir Plywood Association, Tacoma 2, Washington.

LOCATION: San Francisco, California
CONTRACTORS: Starrett Bros. & Eken, Inc., New York
SUBCONTRACTORS HANDLING JOB: Dinwiddie Construction Co., San Francisco
ARCHITECTS: Leonard Shultze & Associates, New York
Thompson & Wilson, San Francisco, architectural consultants

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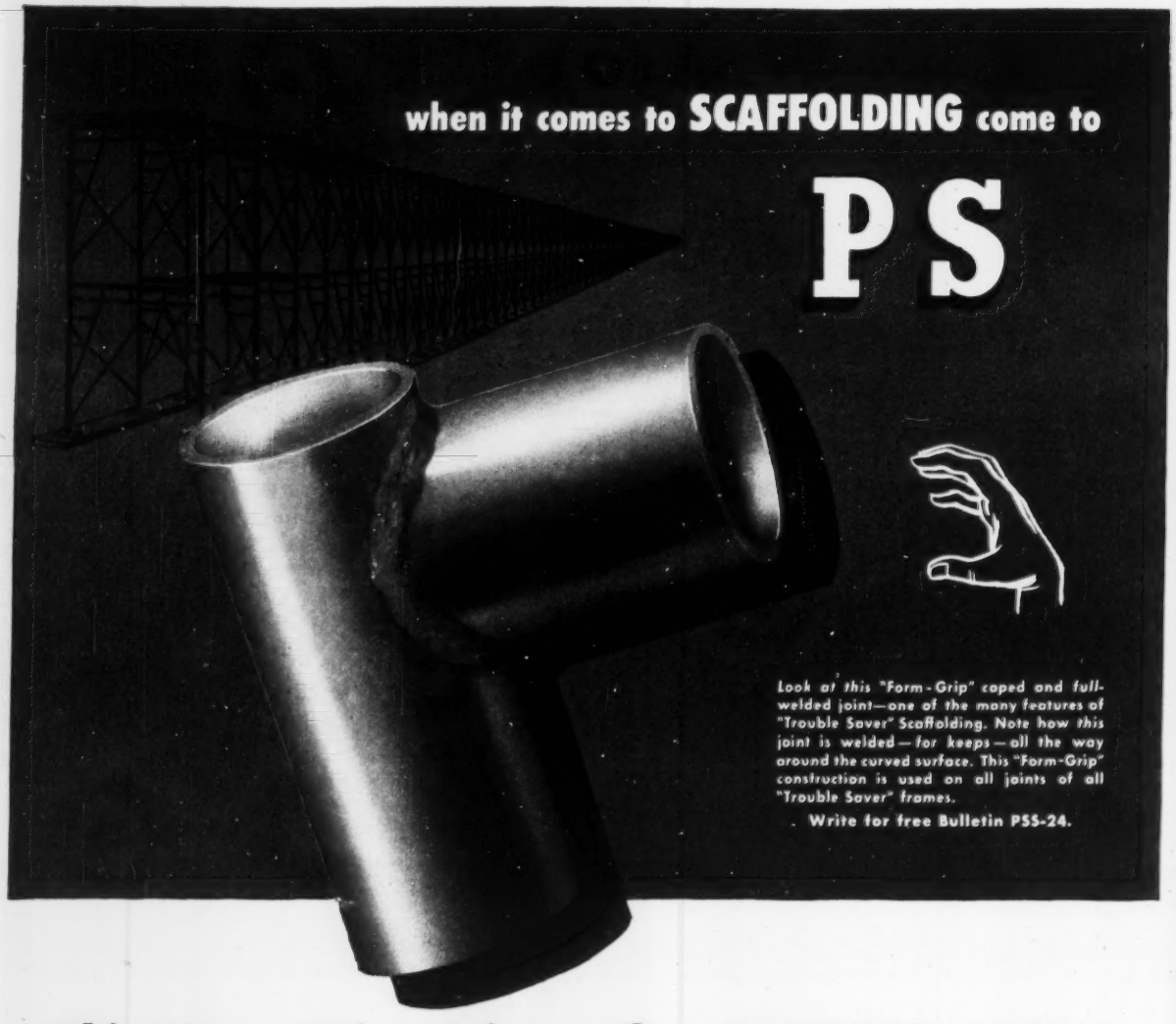

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(Continued from page 121)

City, City Hall, Main and Harwood Sts., Dallas, Tex., Force Account, **$60,000**, sanitary sewers in Forrest Hills, DALLAS, TEX. CD 3/20/52, under LB.

City, City Hall, Dallas, Tex., Purchases, Day Labor. **$60,000** laying sanitary sewers main line—to tie into Casa View Lake Subdivision, DALLAS, TEX. CD 11/21/51.

City, Edna, Tex. Owner Builds. **$35,000.** some c.i. water mains, EDNA, TEX. CD 2/3.

City, Edna, Tex., CA, **$62,100**, sanitary sewer collection lines, EDNA, TEX. Lockwood & Andress Union Natl. Bank Bldg., Houston, engrs. CD 2/3.

† **Knutson Constr. Co.**, 3603 Main St., Houston, Tex., LB, **$316,418**, base maintenance hangar with shops, 31 ft. wide on two sides and in back and necessary utilities, grading, parking areas. Inv. No. ENG 41-243-53-85, ELLINGTON AIR FORCE BASE, TEX. U. S. Eng., P.O. Box 1229, Galveston, Tex. Bids Mar. 10. CD 2/2.

† **U. S. Eng.**, Box 1538, Albuquerque, N. M. rejected bids Jan. 21, instrument landing sys., Biggs Air Force Base, Inv. No. Eng-29-005-53-62, EL PASO, TEX. **$65,714**. CD 1/29, under CA.

Worth Constr. Co., 308 E. Berry St., Fort Worth, Tex., LB. **$131,514**, paving Berry St. between NS Freeway and Hemphill St. 7 in. concrete pavement;

General Constr. Co., 3201 W. Vickery St., Fort Worth, Tex. LB. **$86,356**, est. $95,000, wid'n., paving W. 10 St. with 7 in. c.conc. pavement and curb and gutter, FORT WORTH, TEX. City, c/o W. O. Jones, city mgr., City Hall, Fort Worth, Tex. Bids Mar. 12. CD 3/4.

Brown & Root, Inc., Box 3, Houston, Tex. LB. **$115,945**, est. $150,000, earthwork, incl. 105,000 cu. yd. road and railroad embankment, 35,000 cu. yd. transit-shed compacted fill, etc., FREEPORT, TEX. Brazos River Harbor Navigation Dist., 1001 Pine St., Freeport, Tex. Bids Mar. 9.

City, Galena Park, Tex., Day Labor. **$40,000**, ground type water storage, rein.-con., GALENA PARK, TEX.

City, Galena Park., Tex. Owner Builds. **$65,000**, some addnl. street imprvs. and surfacing, GALENA PARK, TEX.

B. L. English Constr. Co., 1601 1 St., Houston, Tex., CA, **$80,000**, storm sewers and main line sanitary sewer to new sec. of Oak Forrest; CA **$78,000** laying new trunk sewer line, from near Rock Island R.R. into the new bldg. area;

Aubrey Sherp, 1111 Dubarry St., Houston, Tex., CA, **$61,000**. lateral sanitary sewer lines, HOUSTON, TEX. Frank W. Sharp & Assocs., 2202 Rosslyn St., Houston, Tex. CD 1/29.

† **U. S. Eng.**, 606 Santa Fe Bldg., Galveston, and **U. S. Govt.**, c/o Director of Procurement, Bldg. 43, Kelly Air Force Base, Tex., cancelled bids to have been opened Mar. 20, airplane repair hangar and base maintenance shops, KELLY AIR FORCE BASE, TEX. Project suspended. CD 1/26.

▲† **Harwell & Harwell**, Box 177, San Antonio, Tex., LB, **$1,514,800**, high horsepower reciprocating engine test facilities, Serial No. IFB 41-608-53-496B, KELLY AIR FORCE BASE, TEX. U. S. Govt. c/o AF Contg. Officer, SAAMA, Kelly Air Force Base, San Antonio, Tex. Bids Mar. 12. CD 3/9.

Gerald Mora, 312 Sabine St., Houston, Tex., LB, **$92,267**, Contr. 5, sewage collection system;

Hays Filter Co., 205 Elm St., Waco, Tex., LB. **$61,028**, incl. Alt. 1, Contr. 6, sewage treatment plant, KEMAH, TEX. Galveston County Water Control & Imprvt. Dist. 12, Kemah, Tex. Bids Mar. 3. CD 2/11.

†**C. L. Browning, Jr.**, P.O. Box 5008, Beacon Hill Station, San Antonio, Tex., LB **$429,905**, est. $300,000. 50,000 sq. ft. communication human resources bldg. and communications facilities, Inv. No. Eng-41-243 53-53-99, LACKLAND AIR FORCE BASE, TEX. U. S. Eng., Box 1229, Galveston, Tex. Bids Mar. 13. CD 3/5.

† **Cage Bros.**, 6959 San Pedro Ave., San Antonio, Tex. LB. **$628,348**, est. $580,873, runways, Goodfellow Air Force Base, ENG-41-443-53-44, SAN ANGELO, TEX. U. S. Eng., 100 W. Vickery St., Fort Worth, Tex. Bids Mar. 12. CD 2/18.

McCurdy & Co., Box 6066, Wichita Falls, Tex., LB. **$65,545**, (a), water supply imprvs., Wichita Falls State Hospital, WICHITA FALLS, TEX. Board for Texas State Hospitals & Special Schools, 4407 Lamar Blvd., Austin, Tex. Joe E. Ward, 545 Oil & Gas Bldg., Wichita Falls, Tex., engr. Bids Mar. 6.

Hiert Price, Castle Rock, Colo., CA, **$43,667**. four deep water wells, BRIGHTON, COLO. South Adams County Water & Sanitation District, Derby, Colo. Bids Feb. 20. awarded Mar. 4.

McMillon & Pascal, 3050 S. Huron St., Englewood, Colo., CA, **$128,051**, sanitary sewer lines, appurtenances, LAKEWOOD, COLO. Alameda Water & Sanitation District, Lakewood, Colo. Awarded Feb. 23. CD 9/23.

† **Burran Brothers**, Box 72, Clovis, N. M., LB, **$193,039**, training squadron headquarters and operations, Clovis Air Force Base, Serial No. ENG 29-005-53-77, CLOVIS, N. M. U. S. Eng., Box 1538, Albuquerque, N. M. Bids Mar. 5. CD 2/6.

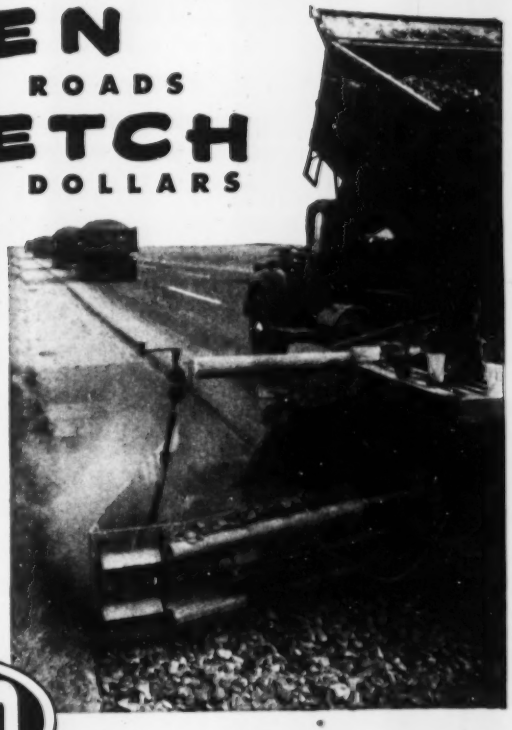
BUILDINGS

LOW BIDS AND CONTRACTS

▲† **Harold Purtell Constr. Co.**, Hamm Bldg., Minneapolis, Minn. LB. **$1,414,097**, with hardener finish on floors. LB. **$1,386,097**, with hardener on part of floors. WAREHOUSE, Twin Cities Arsenal, Inv. 25-066-53-132, MINNEAPOLIS, MINN. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Mar. 10. CD 2/16

Utah-Beck Co., First National Bank Bldg., Dallas, Tex. Owner Builds. **$600,000.** HOUSING, DAVENPORT, IA.

WIDEN ROADS STRETCH DOLLARS



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† **Geo. L. Cousins Contg. Co.,** Clyde and Ripa Sts., St. Louis, Mo. LB **$861,586.** WAREHOUSE, St. Louis Ordnance Plant, ENG 23-028-53-90, ST. LOUIS, MO. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. Bids Mar. 12. CD 2/18.

Manhattan Constr. Co., Manhattan Bldg., Muskogee, Okla., CA. Approx. **$400,000.** Four WAREHOUSES, GATE HOUSE and CHANGE HOUSE, PRYOR, OKLA. Deere & Co., 1325 Third Ave., Moline, Ill. Foster Wheeler Corp., 165 Broadway, New York, N. Y. engrs. Awarded Dec. 16.

John B. Martin, Commerce Exchange, Oklahoma City, Okla. LB **$904,848.** OFFICE, 1215 Boulder St., TULSA, OKLA. Oklahoma Blue Cross Insurance Corp., Adkar Bldg., Tulsa, Okla. Bids Feb. 24. CD 2/11.

South-Tex. Corp., Agua Dulce, Tex., Purchase and Hire. $750,000. Cycling PLANT expansion, AGUA DULCE, TEX. CD 8/22.

▲ **Hydrocarbon Research, Inc.,** 115 Broadway, New York, N. Y. CA, $4,800,000. catalytic polymerization UNIT, BAYTOWN, TEX. Humble Oil & Refining Co., Baytown, Tex. CD 12/3.

The Robinhood Corp., 5100 Fannin St., Houston, Tex. Owner Builds. $325,000. SHOPPING CENTER, BELLAIRE, TEX. CD 2/13.

J. C. McClaren, 1921 Danville St., Houston, Tex. Day Labor. $300,000. 26 DWELLINGS, HOUSTON, TEX. CD 2/13.

Mission Manufacturing Co., Humble Rd., Houston, Tex. Purchases, Day Labor. $150,000, PLANT, HOUSTON, TEX. CD 2/17.

Las Palmas Apartments, 2031 McCarty St., Houston, Tex., Own Forces. $300,000. 15 APARTMENT bldg. units, W. Alabama, Las Palmas, HOUSTON, TEX. CD 2/11.

Frank Robertson, 1423 Majestic Bldg., San Antonio, Tex., Own Forces. $375,000, 50 frame DWELLINGS, SAN ANTONIO, TEX. CD 2/18.

C & H Constr. Co., Miles City, Mont. CA, $340,328, general contract Roosevelt Grade SCHOOL, MISSOULA, MONT. Bd. Educ., Missoula, Mont. Bids **Feb. 28.** CD 2/5.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Wash., Tacoma**—SHOP—B.A. 3/24—U.S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, 40,000 sq. ft reln.-con. base maintenance shop, McChord Air Force Base, ENG-45-1085-3-89. Plans deposit $25. Extended date. CD 3/4.

† **California**—B.A. 4/14—Bureau Reclamation, Dpt. Interior, Goleta, earthwork, steel pipe lines, structures, Laterals 2 to 9 (inclusive) Goleta Distribution System, Cachuma Proj., near Goleta, Spec. DC 3910, adv. ENR 3/26. CD 4/20/45.

▲ **California**—B.A. 4/16—Oakdale Irrigation District 322 East D. St., Oakdale, and South San Joaquin Irrigation Dist., 230 N. Main St., Manteca, Tri-Dam Project involving dams, power plants, tunnels, etc., Stanislaus River. $50,000,000. International Engr. Co., Inc., 74 N. Montgomery St., San Francisco, engr. for Beardsley Dam afterbay dam and power plant and Tulloch Dam and power plant. Extended date. CD 2/20.

† **Idaho**—B.A. 4/30—Bureau Reclamation. Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., furnishing four 186 in. butterfly valves, incl. one set handling equip., Palisades Proj., Spec. DS 3911, adv. ENR 3/26. CD 9/12/44.

BIDS ASKED—BUILDINGS

Calif., Fresno—B.A. 4/14—State Div. Architecture P. Wks. Bldg., Sacramento, music bldg., industrial arts bldg., Fresno State College, $800,000. Plans deposit $50.

B.C., **Vancouver**—SCHOOL—B.A. 4/17—Vancouver School Bd., 1595 W. 10 Ave., reln.-con. John Oliver High School addn. $1,500,000. Plans deposit $35. E.D. King, 1595 W. 10 Ave. archt. CD 2/26.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **J. A. Terteling & Sons, Inc.,** 4011 Fairview Ave., Boise, Idaho. LB. **$2,909,185,** est. $3,295,729 earthwork, structures, East Low Canal, Station 2980 plus 00 to 4580 plus 00 and Scooteney Wasteway Station 0 plus 00 to 263 plus 40, Columbia Basin Proj., Spec. DC 3877, WASHINGTON. Bureau Reclamation, Dpt. Interior, Ephrata, Wash. Bids Mar. 3. CD 1/26.

WASHINGTON—State Hy. Comn., Olympia,

Hart Constr. Co., 3536 E. 11 St., Tacoma, Wash., CA, $89,966, 2 treated timber pile trestles on 0.361 mi. Hy. 1, Montesano south, Grays Harbor Co. Bids Mar. 10. CD 2/26.

† **U.S. Eng.,** 4735 E. Marginal Way, Seattle, 4, Wash., cancelled bids to have been opened Mar. 4, 18-ton draft-tube gantry crane for Chief Joseph Dam, Bridgeport, Inv. 53-45 WASHINGTON. Project indefinitely postponed. CD 1/7.

WASHINGTON—State Hy. Dpt., Olympia,

W. J. Halleran, 3228 74 St. S.E., Mercer Island, Wash. LB, $103,509, grading, draining, surf. 22.3 mi. feeder roads, in Block 49, Adams Co. Bids Mar. 10. CD 2/26.

WASHINGTON—State Hy. Dpt., Olympia,

D-H Paving Co., Vancouver, Wash., CA, $331,670, b. conc. surf. and illuminating 6.4 mi. Hy. 2 Monitor to Miller St. in Wenatchee, Chelan Co.;

Smith Bros. General Contractors, 29 Algona Dr., Vancouver, Wash., CA, $68,027, stockpiling crushed stone surf. and mineral aggregates on Hy. 1 Foster Creek to Avery Rd., Lewis Co;

Fiorito Bros., 1100 Leary Way, Seattle, Wash. CA, $418,615, clearing, draining, grading 5.09 mi. Hy. 3. Junction Hy 12-E to Avery Rd., Lewis Co. Grand total $818,312. Bids Mar. 10. CD 2/26.

Lambert Constr. Co., 208 Columbia St., Seattle, 4, Wash., CA, $174,600, water treatment plant, BELLEVUE, WASH. Water District No. 68, Bellevue, Wash. Bids Mar. 9. CD 2/26.

† **Roy L. Bair & Co.,** 1220 Ide St., Spokane, Wash., LB, $132,990, ordnance storage igloos, Geiger Air Force Base, Inv. 53-107, SPOKANE, WASH. U.S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash. Bids Mar. 6. CD 2/25.

† **Schwager-Wood Corp.,** 8024 S.W. 35 Ave., Portland, Ore., CA, $61,095, Schedules 1, 3 and 4, switches with spare parts for Folsom and Nimbus Switchyards, Central Valley Proj., Spec. DS 3859, CALIFORNIA. Bureau Reclamation, Dpt. Interior, Denver, Colo. Bids Jan. 27, awarded Feb. 27. CD 12/22.

▲ **Morrison-Knudsen Co.,** P.O. Box 450, Boise, Idaho, CA excavate powerhouse site Pit No. 4. Powerhouse Proj., Pit River, Shasta Co., awarded Mar. 10;

Claude C. Wood, Lodi, Calif. and Rothschild, Raffin & Weirick, 274 Brannan St., San Francisco, Calif., CA, $1,000,000 dams, generator foundation for replacement of Murphys Powerhouse on Angels Creek, Calveras Co., Awarded Mar. 6, CALIFORNIA. Pacific Gas & Electric Co., 245 Market St., San Francisco, Calif. CD 10/1/46.

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,

Fredrickson & Watson Constr. Co., 873 81 Ave., Oakland, Calif., LB, $1,085,489, 3.6 mi. roads, 7 reln.-con. bridges between Carpenteria and Arroyo Parida and between Ortega Hill and Sheffield Dr., Santa Barbara Co.;

Gallagher & Burk, Inc., 344 High St., Oakland, Calif., LB, $196,987, surf. 3.6 mi. between Muir Station and Rt. 75, Contra Costa Co.;

Granite Constr. Co., Box 900, Watsonville, Calif., LB $153,287, grading, surf. 2.4 mi. between San Lucas and 2.5 mi. north, Monterey Co.;

Eaton & Smith, 1215 Michigan St., San Francisco, Calif. LB, $335,605, grading, surf. 1.6 mi. near Forest Mountain Summit, Siskiyou Co. Bids Mar. 11. CD 2/19.

† **Action Electric Co.,** 572 Bosworth St., San Francisco, Calif., LB, $289,500, electrical supply, ENG-04-203-53-162, CASTLE AIR FORCE BASE, CALIF. U.S. Eng., 180 N. Montgomery St., San Francisco, Calif. Bids Mar. 10. CD 1/30.

† **U.S. Eng.,** 180 N. Montgomery St., San Francisco, Calif., cancelled bids to have been opened Mar. 1, widening runway, ENG-04-203-53-166, HAMILTON AIR FORCE BASE, CALIF. Project postponed indefinitely. CD 3/2.

† **Goudeseune Constr. Co. Inc.,** 8112 Larsom St., Garden Gove, Calif., LB, **$70,470,** 8 in. concrete taxiway, South Taxiway, Calif. ANG Airbase, Ontario International Airport, NG 53-9, ONTARIO, CALIF. Dpt. Army & Air Force, National Guard Bureau, P.O. Box 1139 Sacramento, Calif. Bids Mar. 10. CD 3/2.

J. H. Trisdale Inc., P.O. Box 779, Redding, Calif., CA, $659,581, grading, bridge 7.8 mi. near right abutment of Shasta Dam, REDDING, CALIF. Shasta Co., Court House, Redding, Calif. Bids Feb. 24, awarded Mar. 7. CD 3/3, under LB.

† **John C. Schreck,** 2536 27 St., Sacramento, Calif., LB, $70,940, maintenance docks, Mather Air Force Base, ENG-04-167-53-68, SACRAMENTO, CALIF. U.S. Eng., Wright Bldg., Sacramento, Calif. Bids Mar. 6.

† **Stolte, Inc.,** 8451 San Leandro St., Oakland, Calif., LB, **$879,232,** two high hp test cell buildings, McClellan Air Force Base, SACRAMENTO, CALIF. Dir. of Procurement, McClellan Air Force Base, Sacramento, Calif. Bids Mar. 10. CD 2/20.

M. & K. Corp., Financial Center Bldg., San Francisco, Calif., CA, **$935,912,** Sunset Supply Line, Burlingame-Millbrae Section and portions of Millbrae Baden, Sec. WD 578, SAN FRANCISCO, CALIF. Public Utilities Comn., City Hall, San Francisco, Calif. Bids Mar. 3. CD 3/11, under LB.

Ukropina-Polich-Kral, Box 105, San Gabriel, Calif., CA, diversion tunnel, power tunnel stubs, Cherry River Proj. HHWS 235, SAN FRANCISCO, CALIF. Public Utilities Comn., City Hall, San Francisco, Calif. (Contract has been reassigned). CD 11/15/51, under CA.

Public Utilities Comn., City Hall, San Francisco, Calif., rejected bids Mar. 3, airmail and cargo bldg., San Francisco Airport, Contr. 145, SAN FRANCISCO, CALIF. LB $349,800. CD 3/11, under LB.

† **Campbell Constr. & Equip. Co.,** 1150 Folsom St., San Francisco, Calif., LB, $449,400, service club, Spec. 1756, and air force chapel, Spec. 1773, TRAVIS AIR FORCE BASE, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif. Bids Mar. 5. CD 2/19.

† **Stolte, Inc.,** 8451 San Leandro St., Oakland, Calif., LB, $462,697, armament and electronics shop, Spec. 1757, TRAVIS AIR FORCE BASE, CALIF. U. S. Eng. Wright Bldg., Sacramento, Calif. Bids Mar. 11. CD 3/3.

BUILDINGS

LOW BIDS AND CONTRACTS

Brazier Constr. Co., 309 Pontius St., Seattle, Wash., LB $485,000 remodeling Y.W.C.A. Bldg., SEATTLE, WASH. Young Womens Christian Assn., Fifth Ave. and Spring St., Seattle, Wash. CD 6/30.

N. W. White, Pier 65, Seattle, Wash., CA $100,000, 33x232 ft. masonry passenger-car SERVICE bldg., SEATTLE, WASH. Great Northern Ry., H. J. Seyton, ch. engr. 175 E. 4 St., St. Paul, Minn. CD 7/3/52.

(Continued on page 128)

From the MORETRENCH ALBUM of Success Stories

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MANUFACTURERS OF THE "CEMENT GUN"

(Continued from page 126)

▲ **M. W. Kellogg Co.**, 225 Broadway, New York, 7, N. Y., CA, $6,000,000-$7,000,000, design and construct vacuum flasher REFINERY with capacity of 55,000 bbl. of reduced crude daily, EL SEGUNDO, CALIF. Standard Oil Co. of California, 225 Bush St., San Francisco, Calif. CD 8/18.

M. & K. Corp., 405 Montgomery St., San Francisco, Calif., LB, $633,336, Burnett Elementary SCHOOL, SAN FRANCISCO, CALIF. Dpt. P. Wks., City Hall, San Francisco, Calif. Bids Mar. 11. CD 2/19.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Alberta—B.A. 3/30—Alberta Government, Terrace Bldg., Edmonton, earthfill dam on Seven Parson Creek about 3½ mi. south of Seven Parsons; 16 mi. main canal and appurtenant structures, 3 mi. west of Medicine Hat. Plans deposit $10. each. CD 12/3/43.

Alberta—B.A. 3/31—Alberta Government, Terrace Bldg., Edmonton, 13 miles distributary canals and 52 appurtenant structures in area 8 mi. south of Taber; several distributary canals and about 400 appurtenant structures, area immediately south of Medicine Hat. Plans deposit $10 each. CD 12/3/43.

N. B., Millbank—WHARF—B.A. 4/1—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., wharf, $190,000. Plans deposit $90. R. Blais, c/o Owner, engr. CD 3/26/52.

Ont., Toronto—SWIMMING POOL—B.A. 4/7—Municipality City Hall, swimming pool, at Willowdale Park. L. B. Allan, City Hall, city engr. CD 9/15.

BIDS ASKED—BUILDINGS

Ont., Ottawa—COMMERCIAL PRODUCTS—B.A. 4/10—Atomic Energy Comn. of Canada Ltd., Commercial Products Div., Ottawa, commercial products bldg., Tunney's Pasture. $600,000. Plans deposit $200. CD. 1/12.

▲ **B. C., Esquimalt**—MAGAZINES, etc.—B.A. 4/14—Defence Constr. Ltd., 360 Homer St., Vancouver, 20 magazine buildings, 11 naval stores, $4,000,000. Plans deposit $100. J. L. Adams, c/o owner, engr. CD 8/8/51.

SOON LETS CONTRACT—HEAVY CONSTRUCTION

Que., Montreal—HANGAR—T.C.A., 660 Ste. Catherine W., soon lets contract 3 story, 50x200 ft., concrete, structural steel brick hangar addn. E. W. Sellors, c/o owner, archt.

SOON LETS CONTRACT—BUILDINGS

Que., Montreal—OFFICE—Guy Street Corp., 1226 W. Ste. Catherine St., soon lets contract, 7 story, 60x125 ft., concrete, steel, brick, stone office, $750,000. Mendal & Assocs. 444 St. Helen St., Montreal, engrs. W. J. Rosenberg, 1226 W. Ste. Catherine St., archt.

Que., Montreal—FACTORY—A. Naimark, 2545 Grand Blvd., soon lets contract 3 story, bsmnt., 83x101 ft., concrete, brick, stone factory. De Belle & White, 2545 Grand Blvd., archts.

▲ **Que., Montreal**—COLLEGE—Rev. Peres Endistes du Canada, 293 Blvd. des Prairies, soon lets contract, 6 story, 60x329 ft., concrete, brick, stone classical college, Blvd. Rosemont, $1,000,000. A. Martineau, 332 Craig St. E., archt. CD 1/5.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Poole Constr. Co. Ltd.**, 332 7 Ave. West Calgary, Alta., CA, $5,500,000, dam for preventing winter flooding at Bow River, CALGARY, ALTA. Calgary Power Ltd., Calgary, Alta. CD 1/14/49.

Defence Constr. Co. Ltd., 400 Kensington Bldg., Winnipeg, Man., cancelled bids to have been opened Jan. 7, officers' mess hall extension, R.C.A.F. Station, GIMLI, MAN. Project cancelled. CD 12/12.

Maple Leaf Constr. Ltd., 777 Erin St., Winnipeg, Man., CA. $100,000, road construction, GIMLI, MAN. Govt. of Canada, Dpt. National Defence, Ottawa, Ont. Bids Feb. 17. CD 2/4.

F. A. Mager, St. Vital, Man., Own Forces, $130,000 sewers and servicing for housing development, Hull Ave. and St. Marys Rd., ST. VITAL, MAN. CD 2/13.

▲ **NOVA SCOTIA**—Dpt. Transport, Hunter Bldg., Ottawa, Ont.,

Canit Constr. Ltd., 802 Aldred Bldg., Montreal, Que., CA, Est. $5,000,000, navigation lock and bridge Strait of Canson Causeway Project. O. J. McCulloch & Co., 45 Westminster Ave., Montreal, Que., engr. CD 10/9/51.

Congregation of the Resurrection, North Bay, Ont., Day Labor, $125,000. 77x124 ft., rein.-con., glass blocks gymnasium at College, NORTH BAY, ONT. P. J. O'Gorman, 114 MacKay Block, Sudbury, Ont., archt.

S. Cosentino Ltd., 77 Richie Ave., Scarborough, Ont., CA. $44,877, 33,656 lin. ft. water mains with valves, hydrants;

Marino Constr. Ltd., 7 Sibley Ave., Toronto, Ont., CA. $213,849, 8 mi. 6- to 12-in. water mains, West Hill Area, SCARBOROUGH, ONT. Scarborough Twp., 1666 Kingston Rd., Scarborough, Ont. Proctor, Redfern & Laughlin, 11 Jordan St., Toronto, Ont., engrs.

Dunker Constr. Ltd., 251 W. King St., Kitchener, Ont., CA. $100,000, rein.-con. reservoir, elevated steel tank, etc., WATERLOO, ONT. Municipality, Waterloo, Ont. Bids Feb. 19. CD 2/4.

Dumfries Constr. Co. Ltd., 7 Sprague Rd., Galt, Ont., CA. $75,000. sewers, walks, curbs and gutters, WATERLOO, ONT. Municipality, City Hall, Waterloo, Ont. E. E. Oke, City Hall, city engr.

(Continued on page 131)

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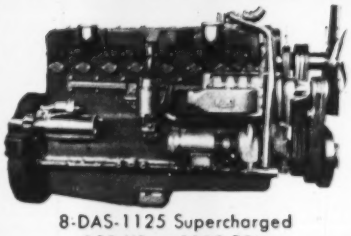
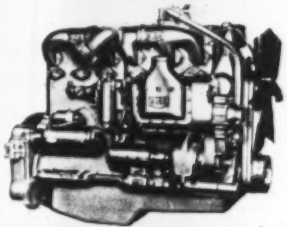
with BIG BUDA DIESELS

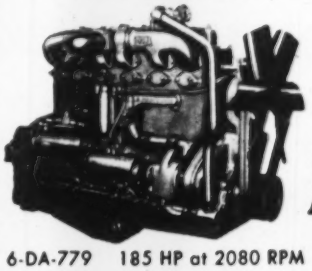
13 to 25% More Displacement!



8-DAS-1125 Supercharged
350 HP at 2100 RPM



6-DAS-844 Supercharged
280 HP at 2100 RPM



6-DA-779 185 HP at 2080 RPM

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SUPERIOR BLASTING

on GEORGIA DAM Project

MEN ON THE JOB prime charges of "Red Cross Extra" with "MS" Delays to insure good fragmentation and a minimum of backbreak and vibration.

BLASTING RESULTS at Buford Dam show how combination of Du Pont "Red Cross Extra" Dynamite and "MS" delays helped speed the removal of 1,100,000 cubic yards of rock.

UNIFORM BREAKAGE insures fast removal of blasted rock, saves time, haulage costs, manpower.

Contractor uses Du Pont "RED CROSS EXTRA" and "MS" Delays

To perform a more efficient job of blasting, Groves, Lundin & Cox, of Minneapolis, Minn., used Du Pont "Red Cross Extra" Dynamite (40% and 60%), and Du Pont "MS"* Delay Electric Blasting Caps on the new Buford Dam Project in Georgia. This combination produced good fragmentation with a minimum of backbreak—permitting quick and easy removal of rock.

Buford Dam, situated on the Chattahoochee River, 35 miles northeast of Atlanta, is one of four dams to be constructed in this area. Its purpose is to provide hydroelectric power for the surrounding district and to assure an adequate water supply for Atlanta's homes and factories. Buford Dam will produce 154,800,000 kw-hours of electric energy in a normal year and has a water reserve of 304,670,000,000 gallons.

Du Pont "Red Cross Extra" Dynamite is widely used on operations of this type. It's dependable, has considerable water resistance, and is one of the best all-around explosives available to the industry.

Contact your Du Pont Explosives representative about Du Pont "Red Cross Extra" and "MS" Delay Electric Blasting Caps. He'll gladly give you detailed information on these reliable, top-quality products. E. I. du Pont de Nemours & Co. (Inc.), Explosives Department, Wilmington 98, Delaware.

**Available in 14 millisecond delay intervals: MS-25, -50, -75, -100, -125, -150, -175, -200, 250, -300, -350, -400, -450, -500.*

DU PONT EXPLOSIVES

Blasting Supplies and Accessories

DU PONT

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Better Things for Better Living . . . *through Chemistry*

(Continued from page 128)

Louis B. Magil Co., 5275 Queen Mary Rd., Montreal, Que., CA. $165,000, water treatment plant, R.C.A.F. Station, ST. HUBERT, QUE. Defence Constr. Ltd., 1247 Guy St., Montreal, Que. M. P. McAndrew, c/o owner, engr.

BUILDINGS

LOW BIDS AND CONTRACTS

Precast Concrete Ltd., Pearse Estate, Calgary, Alta., Own Forces. $200,000, PLANT, EDMONTON, ALTA. CD 3/13.

▲ **B. C. Bridge & Dredging Co. Ltd.**, 544 Howe St., Vancouver, B. C. CA. Approx. $2,213,000, 8 story, BANK addn., VANCOUVER, B. C. Canadian Bank of Commerce, 698 W. Hastings St., Vancouver, B. C. CD. 11/26.

▲ **Grisenthwaite Constr. Ltd.**, 637 Parkdale St., Hamilton, Ont., CA. $1,500,000, HOUSING DEVELOPMENT and SHOPPING CENTER, Townsend Sub-division, ALDERSHOT, ONT. Aldershot Investments Ltd., 637 N. Parkdale St., Hamilton, Ont.

Grisenthwaite Constr. Co. Ltd., 637 Parkdale Ave., Hamilton, Ont., Owner Builds. $950,000. 1½ story, brick, concrete DWELLINGS, Fraser Park Sub-division, HAMILTON, ONT.

F. W. McLachlan Ltd., 195 Fairbank Ave., Toronto, Ont., CA. $85,000, 2 story PLANT addn., Taymall Rd., ISLINGTON, ONT.

Dinsmore Constr. Ltd., 14 McDougall St., Windsor, Ont., CA. $85,000, 1 story, 80x100 ft., concrete, steel PLANT addn. WINDSOR, ONT. Auto Mfg. Co. Ltd., 614 E. Tecumseh Rd., Windsor, Ont.

▲ **Lorenzo Boisclair**, 862 St. Louis St., Joliette, Que., CA. $1,000,000, 5 story, bsmnt., 57x300 ft. 2 story 33x255 ft., rein.-con., brick ORPHANAGE, JOLIETTE, QUE. Les Religieuses de la Providence 2311 Fullam St. E., Montreal, Que. CD 10/24.

Anglin Norcross Quebec Ltd., 892 W. Sherbrooke St. W. Montreal, Que., CA. $200,000, 2 story, 45x85 ft., concrete, brick, stone PLANT addn., St. Patrick St. MONTREAL, QUE. Montreal Coke & Mfg. Co. Ltd., 107 W. Craig St., Montreal, Que. C. H. Copeman, 1117 W. Ste. Catherine St., Montreal, Que., archt.

▲ **J. A. Brunelle**, 10680 St. Charles St., Montreal, Que., Owner Builds, $1,000,000, concrete, brick HOUSING DEVELOPMENT in East Section VARENNES, QUE.

ALASKA

BIDS ASKED—BUILDINGS

▲† **Alaska, Big Delta**—BARRACKS, etc.—B.A. 4/7—U. S. Eng., Evergreen Hall, 3013 Arcade Bldg., Seattle, 1, Wash., barracks, shops, laboratory, warehouse heat and power plant, etc. for Arctic Training Branch and Arctic Innoctrination School. ENG-95-507-53-43. Plans deposit $75. Extended date. CD 2/4.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Lytle & Green and S. Birch & Sons**, Securities Bldg., Seattle, 1, Wash. LB. $1,159,682, laundry and dry-cleaning plants, Ladd Air Force Base, Inv. 53-59, ALASKA. U. S. Eng., Evergreen Hall, 3013 Arcade Bldg., Seattle, 1, Wash. Bids Mar. 10.

† **P. Wks. Officer**, 17th Naval Dist., Kodiak, Alaska, cancelled bids to have been opened Mar. 12, 7,500 sq. ft. steel frame crash-boathouse at Naval Station. Spec. 31624, KODIAK, ALASKA. Proj. postponed indefinitely. CD. 2/26.

BUILDINGS

LOW BIDS AND CONTRACTS

Burgess Constr. Co., Fairbanks, Alaska, CA. $425,000, est. $480,000, 1 story, bsmnt., 64x138 ft. rein.-con. Denali Elementary SCHOOL addn., FAIRBANKS, ALASKA. School Bd., Fairbanks, Alaska. Bids Mar. 7. CD 2/26.

PUERTO RICO

BUILDINGS

LOW BIDS AND CONTRACTS

Dpt. P. Wks., San Juan, Puerto Rico, rejected bids Feb. 11, enlarging Vocational Industrial Arts SCHOOL for Boys, MAYAGUEZ, PUERTO RICO. CD 2/3.

U. S. POSSESSIONS

BIDS ASKED—BUILDINGS

Philippine Islands, Manila—HOSPITAL—B.A. 5/5—Honorable Ramon Magsaysay, secy. National Defense, Republic of Philippines, Dpt. National Defense, Camp Murphy, Quezon City, building and utilities (Part I) Veterans Hospital, Hilaga Ave., Diliman. Plans deposit 350 Pesos for general contract; 20 Pesos for elevator and refrigeration contract.

Proposed Projects

WATER SUPPLY

▲ **Ga., Thomasville**—City, City Hall, voted bonds, water and light plant imprvs. $2,250,000. CD 2/16.

Mass., Billerica—Town, Water Dpt., water system addn., 16 in. water mains, filtration plant. $750,000. Camp Dresser & McKee, 6 Beacon St., Boston, Mass., consult. engr.

Mass., Yarmouth—Town, Water Dpt., water system exten. $300,000. Whitman & Howard, 89 Broad St., Boston, consult. engrs.

N. C., Carolina Beach—Town, voted bonds Mar. 3, WW and sanitary sewer imprvs. $310,000. CD 1/30.

N. C., Sanford—Town, defeated bonds Mar. 3, water facilities, plant, pipe line to Deep River, tank, etc. $900,000. CD 2/13.

▲ **O., Cleveland**—City, City Hall, Zone 14, 42 in. water main, in Woodhill Rd. from Fairmount Station to Harvard Ave. $900,000; 30 in. water main in E. 71 St. from Harvard Ave. south to Chestnut St. in Independence, $1,500,000. George W. Hamlin, acting comr. of utilities engr. CD 12/10/43.

▲ **Okla., Oklahoma City**—City, City Hall, bond election Apr. 28, 80 water wells. $2,000,000. C. E. Bretz, 1916 N. Broadway, consult. engr. M. B. Cunningham, city engr. CD 2/26.

▲ **Tex., Tyler**—City, no bond election Feb. 28, (a) 20 in. 9,000 lin. ft. water mains, for Bryant Heater area, $175,000 (b) 1 mi. elevated steel water storage tank, $120,000 (c) addnl. water mains for old and new areas, $305,000 (e) some water main connections in General Electric Co. plant area, $200,000 (f) WW sys. rehabilitation, $175,000; water distr. lines, new and old areas, $275,000. CD 2/12.

Vt., Rutland—City, c/o Harold L. Durgin, Chamber of Commerce, Water Comm., Rutland, 45x400 ft. dam to create 79-90 m. g. reservoir-intake structure, pipe, etc. $500,000. CD 3/13/52.

Va., Virginia Beach—Bd. Supervs. Princess Anne Co., Princess Anne, $350,000 bond election Apr. 7, addnl. water service in North Virginia Beach Sanitation Dist. V. Alfred Etheridge, exec. secy., c/o owner, engr.

SEWERS, WASTE DISPOSAL

▲ **D. C., Wash.**—Dist. of Columbia Govt., 499 Pennsylvania Ave. N. W., incinerator, site not selected $2,500,000; incinerator at Mt. Olivet Rd. and West Virginia Ave., $2,200,000.

▲ **Ga., Savannah**—City, City Hall, voted bonds sanitary sewer imprvs. $1,000,000. CD 9/25/50.

N. Y., Batavia—City, sewage treatment plant enlargement and modernization. $568,000. CD 11/2/44.

▲ **Pa., Erie**—City and Lawrence Twp. Comrs., Erie, sewage disposal plant addn., alterations, sanitary sewer in connection with treatment plant, $5,500,000. Consoer, Townsend & Assoc., Clark Bldg., Pittsburgh, engrs. CD 11/29/51.

▲ **Pa., Tarentum**—Joint Sewage Comn., John Travorski, Tarentum, sewage disposal plant, East Deer Twp. $3,000,000. Fridy, Gawker, Truscott & Fridy, 1321 Arch St., Phila., consult. engrs. CD 11/1/45.

Tenn., Dyersburg—City, City Hall, bond election Apr. 1, sanitary sewer imprvs. $735,000. CD 2/12.

Tex., Tyler—City, no bond election Feb. 28, (g) sewage treatment plant, $400,000 (h) some sanitary sewer collection mains, $200,000 (i) general rehabilitation sanitary sewerage sys. $150,000. CD 2/12.

Va., Covington—City, City Hall, bond election Apr. 7, sewage treatment plant, $725,000; water sys. and streets exten. in annexed area, $200,000. Wiley & Wilson, 905 Peoples Bank Bldg., Lynchburg, consult. engrs. CD 1/13.

Wis., Eau Claire—City, City Hall, sanitary sewers in various streets; storm sewers in various streets, storm sewer in Putnam Heights. $185,000.

BRIDGES

▲ **D. C., Wash.**—District of Columbia Govt., Highway Dpt., 499 Pennsylvania Ave. N. W., culvert on E. Capitol and Southern Ave., $86,000; Bridge over Oxen Run, $230,000; underpass at Benning Rd. and Kenilworth Ave. N. E., $1,200,000.

Oklahoma—State Hy. Dpt., Capitol, Oklahoma City, Harper Co.—bridge over Cimarron River at Rosston, $345,000.

STREETS AND ROADS

Ga., Savannah—City, City Hall, voted bonds, street imprvs. $750,000. CD 2/19.

▲ **Neb., Ohama**—City, City Hall, 18 and Farnam Sts., city wide street resurf. $4,500,000. Kirkham-Michael & Assoc., 1504 Dodge St., consult. engrs. E. W. Woodbridge, city engr. CD 11/10.

O., Cleveland—City, City Hall, Zone 14, resurf. pavement of Lorain Ave. from W. 25 St. to Rocky River Dr. $400,000; resurf. Superior Ave. from Public Square to East Cleveland boundary line, $420,000; resurf. Ridge Rd. from Memphis to Brookpark Rds., $100,000. John C. Wenrick, City Hall, City comr. of Engrs. CD 11/7.

Ont., Sarnia—Lambton Co., resurf., repairing county roads $574,000.

EARTHWORK, WATERWAYS

▲ **Yukon**—Canadian Exploration Corp., c/o Frobisher Ltd., 25 King St. W., Toronto, Ont., plans dam on north end of Lac Laberge, southern part of Yukon on upper tributaries of Yukon River; 100-200 ft. deep lake covering thousands of square miles, forcing relocation of Whitehorse, Champagne and Carcross; three 500,000,000# hp. hydro-electric plants at Kluane,

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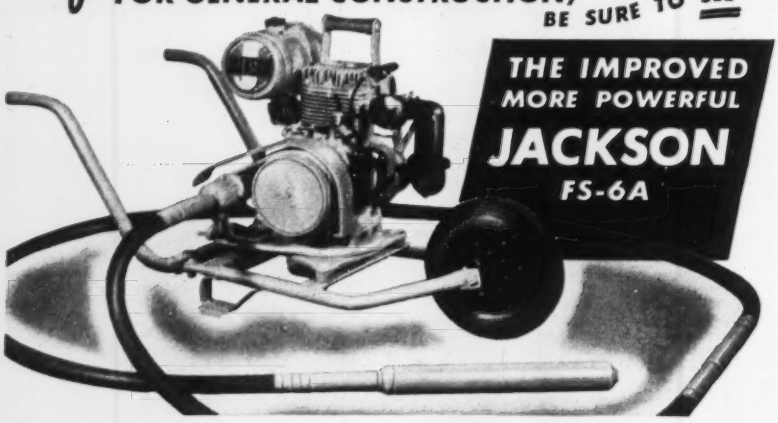

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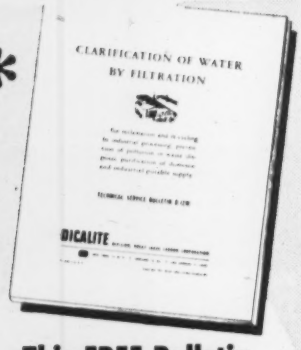

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AIRPORTS

▲ Fla., Homestead—BARRACKS, etc.—U. S. Eng., P. O. 4970 Jacksonville, plans by Henry Hohauser, 4011 Chase Ave., Miami Beach, 18 Barracks, $200,000 each; 4 officers quarters, $105,000 each; 4 mess halls, $270,000 each; academic bldg., $210,000, all foregoing Homestead Air Force Base.

Neb., Omaha—LOADING RAMP—City, City Hall, 18 and Farnam Sts., expansion of loading ramp sys. at Municipal Airport. $325,000. Kirkham-Michael & Assoc., 1504 Dodge St., consult. engrs. E. W. Woodbridge, city engr. CD 2/27.

▲† Tex., Mission—AIRFIELDS—U. S. Eng., Box 1229, Galveston, secondary airfields, No. 1, near Mission, $500,000; No. 2, near Edinburg, $400,000; No. 3, near McAllen, $350,000, to be built in conjunction with re-activation of Moore Feld. CD 12/24.

Va., Richmond—RUNWAYS, etc.—City, City Hall, improv. runways and ramp at Byrd Airport. $328,000. CD 10/7/43.

† Alaska—AIRPORT—Alaska Aeronautics & Communications Comn., Juneau, gravel-topped airport at Sand Point, $250,000; 4,000 ft. airfield near Bethel, $200,000. gravel topped airfield at Hooper Bay, $120,000; airport at Lost River, $100,000.

LATIN AMERICA

Brazil, Rio de Janeiro—Fabriek Fokker Airplane Co., The Hague, Netherlands, plans factory at Gallau Airport to manufacture aircraft for Civil and Military use. $500,000.

▲ El Salvador, Acajutla—Commission Ejecutiva del Puerte de Acajutla (CEPA) and Direccion de Urbanismo y Arquitectura, Avenida Sur 74, San Salvador, plans port facilities. $20,000,000.

▲ Mexico, Cordoba—City Govt., Palacio Municipal, Cordoba, plans public works featuring markets, schools, sports centers, WW, sewerage. $2,500,000.

Mexico, Obispo—SUGAR MILL—Diputado Jacobo Aragon Aguillon, Camara de Diputados, Mexico City, plans by Octaviano Flores, c/o owner, sugar mill. $500,000.

PUBLIC BUILDINGS

Ala., Indian Springs—INFIRMARY-SCIENCE—Alabama Education Foundation, 910 Brown-Marx Bldg., Birmingham, plans by Lawrence S. Whitten, Brown-Marx Bldg., Birmingham, infirmary-science bldg. at Woodward School for Boys. $500,000.

Ala., Montgomery—HEALTH CENTER—City and Montgomery Co., Court House, plans by Sherlock, Smith & Adams, 301 Washington Ave., health center, $500,000. (Correction—owner.) CD 2/19.

Calif., Fresno—JAIL—City, City Hall, $600,000 (bond election, Apr. 12, jail.

Conn., Groton—SCHOOL—Town, Roy S. Haggard, Dist. Selectmen, Town Hall, plans by Warren H. Ashley, 24 Bishop Rd., West Hartford, Senior High School, $850,000. Chas. A. Currier, site planner and Marchant Minges, struct. and mech. engr., both 967 Farmington Ave., W. Hartford. CD 2/16.

▲ D. C., Wash.—CENTRAL LIBRARY—Dist. of Columbia Govt., 499 Pennsylvania Ave. N.W., Zone 25, Central Library addn. or rebuilding. $4,000,000.

▲ D. C., Wash.—GARAGES—Dist. of Columbia Govt., 499 Pennsylvania Ave. N., New Central Garage, 7 and School Sts. S.W., $2,500,000; Northwest Garage addn., $590,000.

▲ D. C., Wash.—YOUTH CENTER—Dist. of Columbia Govt., 499 Pennsylvania Ave. N.W., Youth Center, Lorton Reformatory, $6,000,000. CD 9/16/43.

Ill., Tremont—SCHOOL—School District 702, Tremont, plans by Gregg, Briggs & Foley, First National Bank Bldg., Peoria, Senior and Junior High School and grade school addns. $500,000.

▲ Ind., Indianapolis—CITY-COUNTY BLDG.—City, City Hall and Marion County, Court House, city-county bldg. site of present courthouse, $16,000,000. CD 11/24/43.

Ind., Michigan City—SCHOOL—Bd. Educ., Michigan City, plans by Boyd E. Phelps, Inc., 1000 Washington St., Eastport Elementary School. $600,000. CD 8/22/46.

▲ La., Thibodaux—SCHOOLS—Lafourche Parish School Bd., Thibodaux, voted bonds, school improvs. $2,745,000. CD 1/23.

Mass., Acton-Littleton—SCHOOL—Acton-Littleton Regional School Dist., Littleton voted to construct regional high school, Approx. $500,000. CD 3/1/51.

Mass., Amherst—DORMITORY, etc.—Commonwealth of Mass., University of Mass., Alumni Bldg. Assoc., Amherst, plans by Louis W. Ross, 131 State St., Boston, and A. L. Denton, Melrose, 3 story, bsmnt., 160-student masonry men's dormitory, $500,000; 3 story, bsmnt., masonry 160-student woman's dormitory $500,000.

Mass., Boston—SCHOOL—City Dpt. School Bldgs., 26 Norman St., Boston, Orient Heights Schools, East Boston, $757,000.

▲ Mass., Chelsea—DORMITORY—Commonwealth of Mass., Bldgs. Comn., 20 Somerset St., Boston, plans by Perry-Shaw & Hepburn-Kehoe & Dean 31 St. James Ave., Boston, member patients dormitory Soldiers Home, $2,000,000.

(Continued on page 135)

The Surveyor's Notebook

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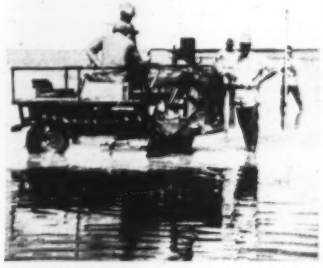

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The Virginian Railway Company's Henry Stanley will cause a great deal of comment, we are sure, with his use of the gradienter in rough terrain; and G. W. Herzog of Shell Oil Company may surprise you with his use of a level on a tractor for whipping mud flats.

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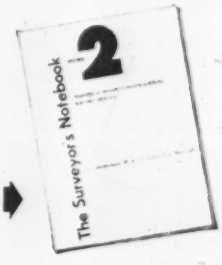

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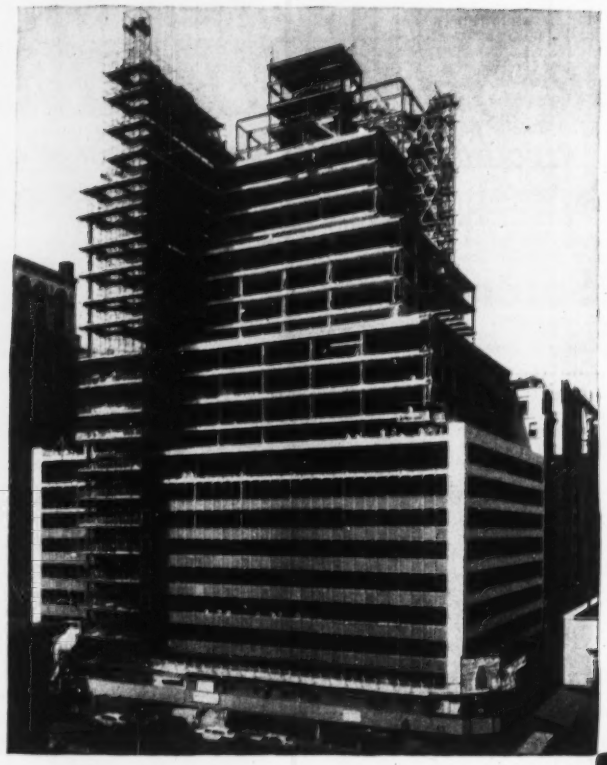

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LIGHTWEIGHT AGGREGATE

(Continued from page 132)

Mich., Adrian—SCHOOL—Bd. Educ., voted bonds Mar. 4, 1 story school, south side, 1 story school, northwest sect., McKinley School addn. $989,000. (Necessary by legal error in Nov. 1952 election). CD 11/11.

▲ **Mich., Bloomfield Hills**—HIGH SCHOOL—Bloomfield Hills City, East Long Lake Rd., brick, steel, concrete high school, $1,390,000. Bond election, Mar. 10.

▲ **Mich., East Lansing**—HOUSING—State of Michigan, A. N. Languis, dir., State Bldg. Dpt., Lansing, brick apartments for married students, Michigan State College. $1,500,000. CD 9/30.

▲ **Mich., Hastings**—SCHOOLS—Bd. Educ. Hastings bond election Apr. 6, high school addn. and 2 elementary schools, $1,200,000. Louis C. Kingscott & Assoc., 511 Monroe St., Kalamazoo, archts., CD 12/31.

▲ **Mich., Ionia**—PRISON—State of Michigan, A. N. Langius, dir. State Bldg. Dpt., Lansing, brick, steel, concrete state prison, medium security structure to house 1,200 inmates, $15,000,000.

Mich., Ypsilanti—DORMITORY—State of Michigan, A. N. Langius, dir. State Bldg. Dpt., Lansing, plans by R. S. Gerganoff, 206 N. Washington St., brick steel dormitory, for Michigan State Normal College. $500,000. CD 3/26/43, under Michigan.

Minn., Farmington—SCHOOL—Bd. Educ., A. C. Smith Jr., clk., plans by Thorshov & Cerny, 400 Metropolitan Bldg., Minneapolis, 1 story school. $500,000.

Minn., Winnebago—SCHOOL—Bd. Educ., Joint Independent School Dist. No. 7, C. W. Robertson, clk., plans by H. H. Swanson, 500 Sexton Bldg., Minneapolis, school. $700,000.

Miss., Gulfport—PLANT—City, City Hall, voted bonds Mar. 3, plant for Mississippi Aluminum Corp. $550,000. Shourd & Mogabgab, P.O. Box 676, archts. CD 2/19.

▲ **Miss., Hattiesburg**—SCHOOL IMPRVS.—Hattiesburg Municipal Separate School Dist., Hattiesburg, bond election May 12, school imprvs. $1,750,000.

Mo., Berkeley (St. Louis 21 P. O.)—SCHOOL—School Dist., Bd. Educ., T. L. Holman, supt. Schools, 6033 Caroline Ave., Zone 21, voted $850,000 bonds Mar. 7, high school, 2 elementary schools, Wm. B. Ittner, Inc., 408 Bd. Educ. Bldg., 911 Locust St., St. Louis, Zone 1, engr.-archt.

Mo., Eureka—SCHOOL—School Dist. R-6, Bd. Educ., Morgan Selvidge, supt. Schools, c/o High School on U. S. No. 66, voted $800,000 bonds Mar. 7, school and imprvs., incl. Junior High School, grade school. CD 2/24.

Mo., Nevada—SCHOOL—Reorganized School Dist., c/o C. H. Jones, supt., plans by Wm. B. Ittner, Inc., 911 Locust St., St. Louis, Mo., school imprvs. $500,000. CD 3/2.

▲ **Mo., University City (St. Louis 5 P.O.)**—SCHOOL—School District of University City, Bd. Educ., Dr. Julius E. Warren, supt Schools, 6701 Delmar Blvd., Zone 5, $2,225,000 bond election Apr. 7, Junior High School and school imprvs. Wm. B. Ittner, Inc., 408 Bd. Educ. Bldg., 911 Locust St., St. Louis, 1, Mo., archt. and engr.

Neb., Bellevue—HIGH SCHOOL—Bd. Educ., Bellevue, plans by Davis & Wilson, 225 Stuart Bldg., Lincoln high school. $400,000. CD 1/16.

▲† **N. J., East Orange**—HOSPITAL—Veterans Admin Vermont Ave. between H and I Sts. N. W., Wash., 25, D. C. 500-bed Veterans Administration Hospital addn $505,000.

N. J., Trenton—SCHOOL—Bd. Educ., 11 S. Stockton St., plans by Micklewright & Mountford, 72 Ewing St., and Louis S. Kaplan, 25 N. Montgomery St., elementary school, on site of present Monument School, Pennington Ave. near Calhoun St. $650,000. CD 7/21/50.

▲ **N. C., Gastonia**—SCHOOL—Gaston Co. Bd. Educ., Court House, bond election May 23, school imprvs. $5,900,000. CD 3/10/52.

O., Cuyahoga Falls—SCHOOL—Bd. Educ., Cuyahoga Falls, plans by Trefon Sagadencky, Cuyahoga Falls, East Side Grade School, Center St., east of Bailey Rd. $500,000. CD 11/11.

O., Dayton—SCHOOL—Bd. Educ., 232 N. Main St. plans by Schenck & Williams, 3rd Natl. Bldg., school, Free Pike School, west of Salem Ave. $650,574. CD 9/5/52.

▲ **O., Lancaster**—SCHOOLS—Lancaster School Dist., Lancaster, defeated bonds Mar. 3, two Junior High Schools. $2,100,000. CD 1/28.

Okla., Frederick—HOSPITAL—Tillman Co., Frederick, plans by W. T. Vahlberg, 1517 N. Broadway, Oklahoma City, county hospital. $575,000. CD 7/16.

▲ **Tex., Dallas**—SCHOOL—Pleasant Mound Independent School Dist., 1316 S. Buckner Blvd., No. 1, elementary school for colored, $350,000; No. 2, elementary school, (whites), $300,000; No. 3, elementary school (whites.) $325,000; Senior High School, $725,000; grade school, $300,000.

▲ **Tex., Killeen**—HIGH SCHOOL—Killeen Independent School Dist., Killeen, high school, $1,121,400.

Tex., San Antonio—SCHOOL—Harlandale Independent School Dist., 300 W. Huff St., voted bonds Mar. 7, school. $500,000. Adams & Adams, Box 283, Terrell Wells Postoffice, archts.

▲ **Tex., Dallas**—SCHOOLS—Dallas Independent School Dist., 3700 Ross St., plans by Howard R. Meyer, 2907 Maple Ave., No. 1, elementary school, Webb Chapel Rd. $550,000; plans by Hidell & Decker, 2814 Fairmount St., No. 2, elementary school, at Northcliffe and Peavy Rd. $650,000; plans by George L. Dahl, 2101 N. St. Paul St., No. 3, elementary school Gaston Park and Easton Rd. $750,000; plans by Mark Lemmon, Thomas Bldg., Hillcrest High School addn. $350,000; plans by Smith & Mills, Mercantile Natl. Bank Bldg., Junior High School, Southeast Lisbon, $1,500,000. CD 10/24.

▲† **Va., Little Creek**—HEATING PLANT—P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, plans by Knappen-Tippetts-Abbett & McCarthy, 62 W. 47 St., New York, N. Y., heating plant, Naval Amphibious Base, NOY 77141. $2,250,000. CD 8/18/52.

Va., Waynesboro—HOSPITAL—Waynesboro Community Hospital, Waynesboro, plans by Eubanks & Caldwell, Boxley Bldg., Roanoke, hospital. $500,000.

▲ **Alta., Edmonton**—HOSPITAL—Royal Alexandra Hospital, Edmonton, plans by Govan, Ferguson, Lindsay, Kaminker, Maw, Langley & Keenleyside, 515 Jarvis St., Toronto, Ont., hospital expansion for next four years incl. kitchen, dining room, laboratories, service wing ambulance entrance. $2,769,000. CD 11/10/50.

▲ **Ont., Kingston**—MILITARY BUILDINGS—Defence Constr. Ltd., 40 Eglinton Ave. E., Toronto, three Kingston Military Buildings. $3,000,000. R. P. Opie, c/o owner, regional engr.

▲ **Que., Hull**—HOUSES—Dpt. Veterans Affairs, Ottawa, Ont., 175 houses, Hull South. $1,100,000.

COMMERCIAL BUILDINGS

▲ **Calif., Bakersfield**—DEPARTMENT STORE—Federated Department Stores, Inc., 707 Race St., Cincinnati, O., 1 story department store, 21 St. and Chester Ave. $1,000,000.

Ga., Atlanta—ART MUSEUM—Atlanta Art Assn. 1262 Peachtree St. N.E., plans by Robert & Co. Assocs., 76 Poplar St. N.W., art museum. $850,000. CD 1/30/48.

▲ **Ind., Munster**—HOSPITAL—Evangelical & Reformed Church, 437 S. East Ave., Crown Point, plans by Bachman & Bertram, 5116 Hohman Ave., Hammond, Calumet Community Hospital, Calumet Ave. $1,000,000.

▲ **Mass., Boston**—DEPARTMENT STORE—Jordan Marsh Co., 450 Washington St., Boston, plans by Perry-Shaw & Hepburn, Kehoe & Dean, 31 St. James Ave., Unit 3, department store, Avon St. $1,000,000. Maurice A. Reidy, 101 Tremont St., structural consult. engr.

▲ **Mass., Braintree**—RESIDENCES—Prosperity Development Co., 195 Benefit St., Pawtucket, R. I., 1,885 residences. $13,500,000. CD 10/23/51.

Mass., Marblehead—RESIDENCES—Victor Trager, 606 Main St., Malden, plans by Myer Louis, 294 Washington St., Boston, 20 residences, $500,000.

Mass., Natick—RESIDENCES—Braintree Lakeview Realty Co., Inc., 12 Weathersfield Rd., 86 residences. $800,000.

▲ **Mich., Detroit**—HOSPITAL—Detroit Cancer Hospital, Dr. Mary Margaret Fraser, 2150 Hancock St., brick, steel, cancer hospital addnl. to general hospital, $3,000,000.

Miss., Jackson—SHOPPING CENTER—Bernard M. Jones, c/o Biggs, Weir & Chandler, archts. 336 Meadowbrook Rd., shopping center, $750,000.

▲ **Mo., Webster Groves** (St. Louis 19 P. O.)—SHOPPING CENTER—Roy F. Graham, c/o Old Orchard Gardens Gift Shop & Nursery, 700 E. Big Bend Blvd., Zone 19, plans by H. F. Kreiger & Frank McGuire, assoc., archts., 2816 Sutton Ave., Maplewood, 10-unit shopping center proj., 700 block of East Big Bend Blvd. $1,000,000.

▲ **N. J., Morristown**—OFFICE—All State Insurance Co., 3245 W. Arlington St., Chicago, Ill., plans by Dunlap & Esgar, 333 N. Michigan Ave., Chicago, Ill., office near here. $1,500,000.

▲ **N. Y., Forest Hills**—APARTMENTS—W. I. C. Co., c/o Lama, Proskauer & Prober, archts., 383 Pearl St., Brooklyn, Zone 1, five apartments, 108 St., southeast corner 62 Dr., southwest corner 63 Ave., southeast corner 63 Ave., southwest corner 62 Dr., southwest corner 65 Ave. $2,730,000.

▲ **N. Y., New York**—OFFICE—Philip Lipstein & Assoc., 16 Court St., Brooklyn, Zone 2, 14 story office, 63-71 East 52 St. $2,500,000.

▲ **N. Y., New York**—NURSES HOME, etc.—Roosevelt Hospital, 59 St. and 8 ave., plans by York & Sawyer, 101 Park Ave., Zone 17, nurses home and school of nursing alterations, 420 W. 59 St. $1,570,000.

▲ **O., Centerville**—SEMINARY BLDGS.—Province of Franciscan Order, Father Vincent A. Kroger, 1615 Vine St., Cincinnati, plans by Brother Catejan Baumann, OFM, 44 Whitehall St., New York, N. Y., seminary bldgs. on 245-acre tract at Clyo and Centerville Station Rds., near here. $1,000,000.

▲ **Tenn., Memphis**—SHOPPING CENTER—Herman Gruber & Co., 289 Madison Ave., plans by Sidney H. Morris & Assoc., 134 N. LaSalle St., Chicago, Ill., shopping center. $2,500,000.

▲ **Tex., Beaumont**—HOSPITAL—Baptist Hospital, c/o Bd. Trustees, Beaumont, plans by Stone & Pitts, 1872 Calder Ave., 5 story west wing addn. to existing hospital. $1,500,000. (Correction—owner). CD 3/4.

▲ **Tex., Fort Worth**—RESIDENCES—Ted C. Peters, 804 E. Berry St., plans by Charles E. Armstrong, First Life Bldg., 250 one-story brick tile houses and shopping center, to be known as South Crest. $5,000,000.

Tex., Houston—OFFICE—Wilson-Brazoria Corp., c/o Eugene J. Wilson, Shell Bldg., 5 story (ultimately 11 story) 100x125 ft. office, Main St.-McGowan Ave. $900,000.

▲ **Va., Richmond**—HOSPITAL—Richmond Memorial Hospital, 101 N. 4 St., plans by Samuel Hannaford & Sons, Dixie Terminal Bldg., Cincinnati, O., hospital, $5,750,000.

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"A STRONG STEP TO SAFETY"

Each Tri-Lok step consists of a panel of Rectangular, Diagonal, or U-type Tri-Lok flooring in any desired width, length, depth, and bar spacing.

SAFE—checker plate nosing bars make each step stand out clearly. Abrasive edging also available.

CLEAN—Clogless, rivetless Tri-Lok joint prevents accumulation of dirt, moisture, rust.

STRONG—added strength provided at maximum load contact by shape and rigidity of nosing bar.

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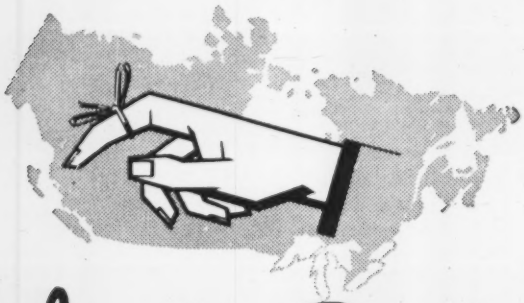

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save time, money and costly weather delays by using pre-cast concrete columns, beams, roof slabs and wall panels. We manufacture and supply a wide variety of these light-weight units—including Flexicore*, Channel Slab and H-M Conduit Floor*. Write for complete details.

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RICHVALE • ONTARIO • CANADA

▲ **Alta, Calgary**—SHOPPING CENTER—Owner, c/o Active Realty Co. Ltd., Garry Fell, pres., Calgary, plans by Stevenson & Dewar, 340 Seventh Ave. W., shopping center between 6 and 7 Sts. northeast and Trans-Canada Hy. $15,000,000.

▲ **Alta., Lethbridge**—HOUSING—L. Wade, c/o Town Planning Comn., City Hall, Calgary, housing development on 97 acre site on 35 St. South, $4,000,000, Glencoe Eng. & Constr. Co. Ltd., 236 8 Ave. W., Calgary, engrs. CD 12/31.

▲ **B. C., New Westminster**—EXCHANGE AND COMMERCIAL—British Columbia Telephone Co., New Westminster, plans by McCarter, Nairne & Portners, 1930 Marine Bldg., Vancouver, 2 story, bsmnt., 101x132 ft., rein.-con., brick, stone exchange and commercial bldg. $5,000,000.

▲ **N. S. Dartmouth**—SHOPPING CENTER, etc.—Owner, c/o G. L. S. Hart, Hart & Cox, 223 Hollis St., Halifax, shopping center and residential development. $4,000,000.

▲ **Ont., Aldershot**—SHOPPING CENTER—Owner, c/o Wilton & Bruce, 80 Richmond St. W., Toronto, shopping center with department store, 80-acre site west of Toronto. $15,000,000.

▲ **Ont., Ottawa**—SHOPPING CENTER—Dominion Houses Limited, 69 Sparks St., 2 and 3 story, 111x346 ft., and 121x128 ft., concrete block, brick, stone L-shaped shopping center, Manor Park Center on east side of St. Laurent Blvd., south of London Terrace. $1,465,000.

▲ **Ont., Toronto**—HOMES—John S. McLennan, 71 Bayview Rd., 1,400 low-cost defence workers' homes Burnhamthorpe Rd. base line Toronto Twp., Etobicoke River and Fifth Line. $10,000,000-$11,000,000.

Ont., Toronto—APARTMENT—Owner c/o Gordon Bazeley, archt., 193 Forest Hill Rd., 7 story apartment, Yonge and Roxborough Sts., $900,000.

Que., Montreal—SCHOOL—Congregation de Notre Dame, 3040 Sherbrooke St., plans by G. Gagnier, 1449 Crescent St., school west side of Papineau St. between Souve and Sourial Sts. $800,000.

INDUSTRIAL BUILDINGS

Ala., Montgomery—WAREHOUSE—Industrial Developers, Inc., c/o Summer-Locatell & Co., Inc., 12 3 St. N.E. Atlanta, Ga., warehouse. $750,000. Alabama Alcoholic Beverage Control Bd., Lessee.

▲ **California**—GENERATING PLANT—Pacific Gas & Electric Co., 445 Sutter St., San Francisco, steam electric generating plant north end of Moro Bay, near San Luis Obispo. $44,000,000.

▲ **Calif., Los Angeles**—PLANT—Robert Baskowitz, Inc., 716 S. 21 St., St. Louis, 3 Mo. bottling mfg. plant, equipment, etc. $2,000,000.

▲ **Fla., Pahokee**—PLANT—American Food Products Corp., 80 Wall St., New York, N. Y., plans by Wm. Bordeaux Langford Bldg., Miami, processing plant. $1,600,000.

▲ **Ky., Mentor**—ROLLING MILL—Kaiser Aluminum & Chemical Co., 1924 Broadway, Oakland, Calif., aluminum rolling (site not definitely selected) $66,000,000.

Mich., Jackson—TERMINAL—Cities Service Oil Co., 3049 E. Grand Blvd., Detroit, distribution terminal, incl. gasoline and oil storage facilities, truck garage and offices, loading sys., shop, etc. $450,000.

Mich., Niles—OIL TERMINAL—Cities Service Oil Co., 3049 E. Grand Blvd., Detroit, oil terminal, incl. oil storage, offices, garage facilities, loading platforms, etc. $450,000.

▲ **Mo., St. Louis**—PLANT—Mathieson Mississippi Co., Dr. Carl Purtton, pres., c/o Mathieson Chemical Corp., Mathieson Bldg., Baltimore, Md., plant for mfg. products derived from natural gas plant.

Neb., Omaha—WAREHOUSE—United Foods Corp., 4450 Commercial Ave., 300x400 ft. brick, concrete warehouse. $650,000. L. E. Wilkie, 513 S. 20 St., consult. engr.

▲ **N. J., Camden**—PLANTS—R. C. A. Victor Div., Radio Corp. of America, Front and Cooper Sts., plans by Oren Thomas & Assocs., 122 Haddon Ave., Collingswood, and I. Ming Pei, consult. archt., 30 Beeckman Pl., New York, N. Y., 4 plant buildings Delaware Twp., Elfisburg. $5,000,000. CD 2/5.

▲ **O., Circleville**—POWER PLANT—Columbus & Southern Ohio Electric Co., 215 N. Front St., Columbus, power plant 90,000 kw generator, plus all necessary equip. to place generator in operation at Picway Plant. $15,000,000. Commonwealth Assoc., Inc., 252 W. Cortland St., Jackson, Mich. consult. engr.

O., Dayton—WAREHOUSE—McCall Corp., George Sheer, gen mgr. 2219 McCall St., plans by Lockwood Greene, Inc., 10 Rockefeller Plaza, New York, N. Y., 1 story brick, concrete, steel warehouse at west end of present plant. $700,000.

Tenn., Nashville—PLANT—Davison Chemical Co., 54 Ave. N., plant addn. $950,000.

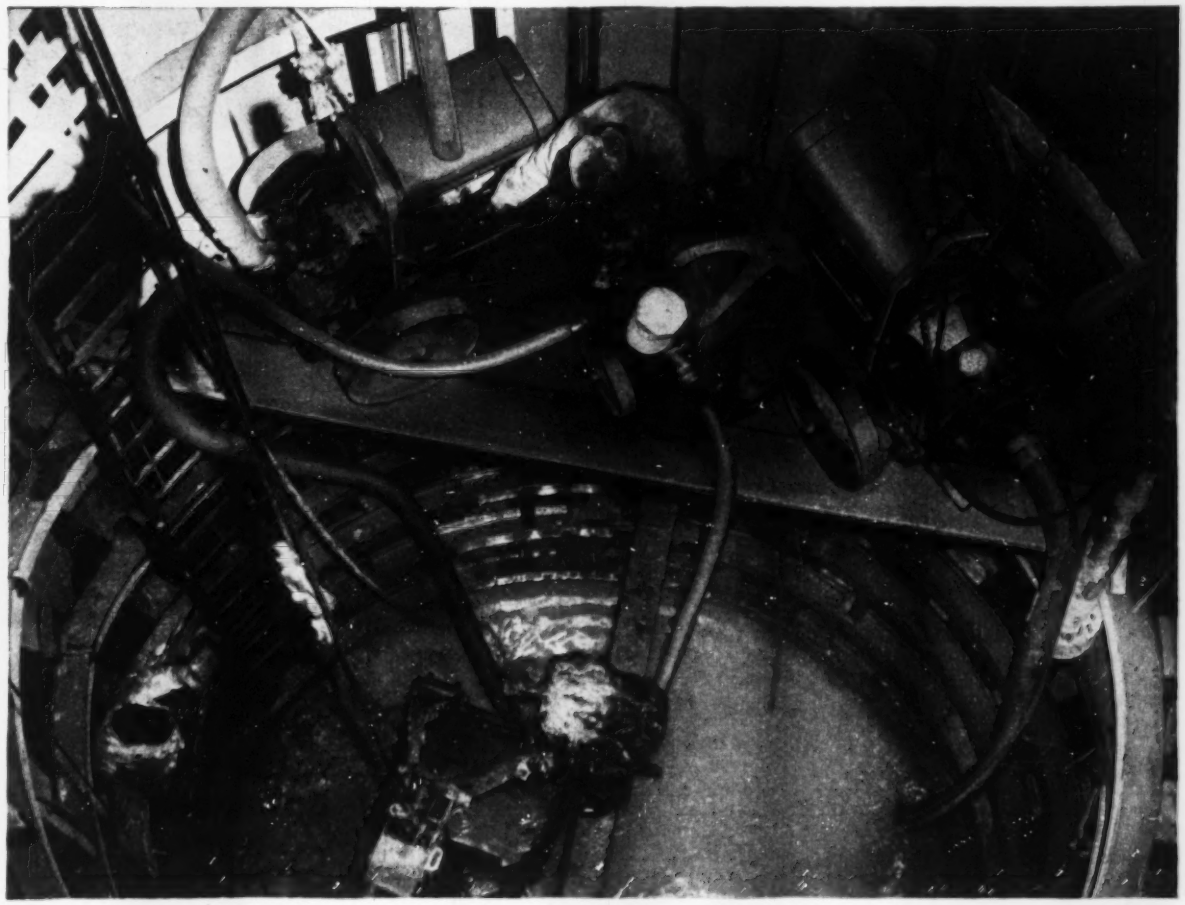
▲ **Tex., Big Spring**—REFINERY—Cosden Petroleum Corp., Big Spring, refinery expansion. $3,000,000.

▲ **Tex., Dumas**—PLANT—Celanese Corp. of America, 180 Madison Ave. New York, N. Y., acetic, acetone methanol chemical plant units. $14,000,000.

▲ **Tex., Houston**—PLANTS, etc.—Philip Carey Mfg. Co., M. & M. Bldg., petro-chemical plant unit, $1,250,000; asphalt saturating plant, $950,000; paper mill unit, $750,000; mineral wool plant, $1,000,000; machinery and equip. repair shop, $200,000, all foregoing on 45-acre tract 6 mi. from downtown Houston; asbestos cement plant for mfg. asbestos cement shingles, $500,000.

(Continued on page 139)

Looking down caisson during construction of $1,400,000 Buffalo, N.Y. High Level Bridge
Two Jaeger 6" pumps and one Jaeger 2" pump handle heavy inflow into 17 ft. diameter caisson, going to 50 ft. depth in riverbed. 25 of these caissons were used to support concrete piers, several up to 95 feet high, at river's edge. Additional caissons were sunk near an elevated railway and an auditorium, to protect their foundations. In many cases cement grouting was necessary — on a single caisson as many as 800 sacks of cement were used.



50 ft. deep in a pier hole you can bet your shirt on Jaeger pumps

Jaeger Pumps are built oversize with larger shells and impellers. They hold more priming water and are subject to less abrasive wear. These big pumps are designed with 2 independent simultaneous priming actions, the only positive self-lubricating seal and engines of the largest horsepower applicable. They deliver full volume at an easy 1200 rpm, priming at only 1400 rpm compared with up to 2000 rpm for ordinary pumps.

No vapor lock even when pulling high vacuum on long intake lines — sustained efficiency on non-stop pumping, and thousands of extra hours of service from both pumps and engines.

- Dewatering Pumps 2" to 10" with capacities of 10,000 to 240,000 gph.
- Pressure Pumps for pressures to 275 lbs.
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- Diaphragm pumps for sand and mud.
- Well point Systems

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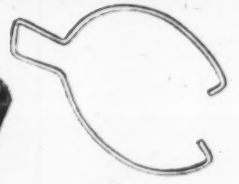
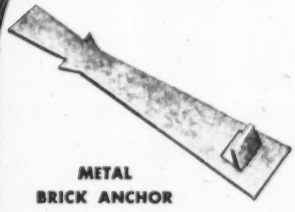
ANCHORING DEVICES
for Brick, Stone, Tile, Block

Universal Anchor Slot . . . wide flanges for extra strength in section . . . no distortion . . . easy Anchor insertion . . . with or without filler . . . provides the best and most accurate means of anchoring to concrete.



WIRE BRICK ANCHOR

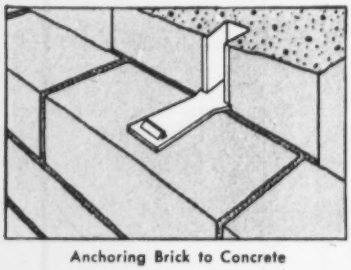
"U" TYPE STONE ANCHOR



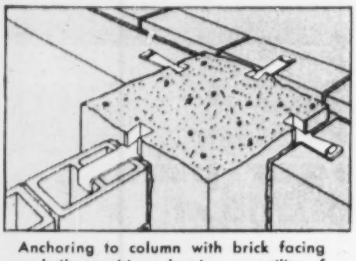
METAL BRICK ANCHOR

"Z" TYPE STONE ANCHOR

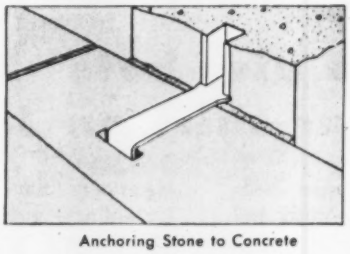
STONE ANCHOR



Anchoring Brick to Concrete



Anchoring to column with brick facing and tile partition, showing versatility of Dovetail Anchor Slot and Anchors.



Anchoring Stone to Concrete

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DISTRIBUTORS IN PRINCIPAL CITIES

Service Wherever You Build . . . Coast to Coast

(Continued from page 136)

▲W. Va., Kenova—PLANT—Line Material Co., 2201 12 Ave., Milwaukee, Wis., electrical porcelain plant. $1,200,000.

▲ Sask., Regina—WAREHOUSE—Simpson-Sears Ltd., 176 Yonge St., Toronto, plans by F. S. Corley, c/o owner, warehouse addn., Broad St. North, $2,000,000.

UNCLASSIFIED

▲ California—ELECTRIC DISTRIBUTION LINES, etc.—Sacramento Municipal Utility Dist., 2101 K St., Sacramento, 341 mi. electric distr. line, 30 mi. 60 kv transmission line and rural sub-station facilities, Sacramento Co. $3,260,000.

▲ D. C., Wash.—SWIMMING POOLS—Dist of Columbia Govt., 499 Pennsylvania Ave. N.W., swimming pool at Randall Junior High School. $650,000. swimming pool, location not decided. $650,000.

▲ Indiana and Michigan—OIL PIPE LINE—Cities Service Oil Co., 3049 E. Grand Blvd., Detroit, Mich., oil pipe line from East Chicago, Ind. to Detroit, Mich. $15,000,000.

Ind., Bedford—SUB-STATIONS—Public Service of Indiana, Inc., 100 E. Main St., Plainfield, 2 sub-stations. $500,000.

▲ Michigan—TRANSMISSION AND POWER DISTRIBUTION FACILITIES—Consumers Power Co., Central Div., H. L. Ziegenben, mgr., Jackson, transmission and power distr. facilities, sub-stations at Greenville and Clare, rebuilding Alma to Edmore 20-mi. line, $1,400,000; transmission facilities power line extensions, sub-station in Gaylor, Otsego Areas, $2,500,000.

Mich., Grand Rapids—TELEVISION STATION—W. S. Butterfield Theatres, Inc., Natl. Bank Bldg., Detroit, television station, $717,600. George P. Adair, 1610 I St., N.W., Wash. 6, D. C., consult. engr.

Neb., Nebraska City—POWER SYSTEM—City, power sys. extens., imprvs. $450,000.

Pennsylvania—RURAL DISTRIBUTION LINES—Clearfield Electric Co-operative, Clearfield, 75 mi. rural distr. lines and sys. imprvs., Clearfield Co. $510,000. CD 2/4/48.

▲ S. C., Aiken—GAS DISTRIBUTION SYSTEM—City, City Hall, natural gas distr. sys. $1,000,000.

S. C., Bamberg—GAS DISTRIBUTION SYSTEM—Town, Natural gas distr. sys. $500,000.

▲ S. C., Charleston—GAS DISTRIBUTION SYSTEM—City, City Hall, natural gas distr. sys. $2,000,000.

▲ S. C., Columbia—GAS DISTRIBUTION SYSTEM—City, City Hall, natural gas distr. sys. $2,000,000.

S. C., Denmark—GAS DISTRIBUTION SYSTEM—Town, Town Hall, natural gas distr. sys. $500,000.

▲ S. C., Greenville—GAS SYSTEM—City, City Hall, natural gas distr. sys. $1,150,000.

S. C., Orangeburg—GAS DISTRIBUTION SYSTEM—Town, Town Hall, natural gas distr. sys. $750,000.

S. C., Summerville—GAS DISTRIBUTION SYSTEM—Town, Town Hall, natural gas distr. sys. $750,000.

S. C., Walterboro—GAS DISTRIBUTION SYSTEM—Town, Town Hall, natural gas distr. sys. $600,000.

Tenn., Bristol—GAS DISTRIBUTION SYSTEM—City, City Hall, natural gas distr. sys. $800,000.

Tenn., Elizabethton—GAS DISTRIBUTION SYSTEM—City, City Hall, natural gas distr. sys. $500,000.

Tenn., Greeneville—GAS DISTRIBUTION SYSTEM—City, City Hall, natural gas distr. sys. $750,000.

Tenn., Johnson City—GAS DISTRIBUTION SYSTEM—City, natural gas distr. sys. $750,000.

Tenn., Kingsport—NATURAL GAS DISTRIBUTION SYS.—City, City Hall, natural gas distr. sys. $900,000.

▲ West Virginia—GAS STORAGE POOL—United Fuel Gas Co., Lipcomb Bldg., Charleston, gas storage pool, Wood Co. $6,000,000. CD 4/27/51.

How the

MOTO-PAVER

View of S. George St., Rome, showing one "slab" laid against the far curb.

The completed resurfacing job—a smooth, waveless surface.

Cut Resurfacing Costs in Rome (N. Y.)

Shown above are before and after views of a recent street resurfacing program in Rome, N. Y., in which a H & B Moto-Paver was used. This program involved a total of 2.47 miles, at an average cost of 52c per sq. yard, including all materials, labor and equipment rental costs. (Approximately 60 days after the paving was completed, a light seal coat was applied. Cost of this seal coat was not included in the 52c.)

Moto-Paver does the complete mixing and laying job—in one continuous operation. As shown here, it produces a smooth, waveless surface—even on rough, rutty and irregular pavements. Road speeds up to 25 mph. make possible quick moves from job to job. *Moto-Paver* gives a uniform mix using beach sand, gravel, crushed stone or slag aggregates, and tars, cutback asphalts, road oils, emulsions or other bituminous materials.

For specifications and further information see your local H & B distributor or write for Bulletin MP 49.

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DENSE · DURABLE · HIGH STRENGTH

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Saxe Welding Connection Units position and secure structural parts to be welded. Clip K3A permits an adjustable connection.

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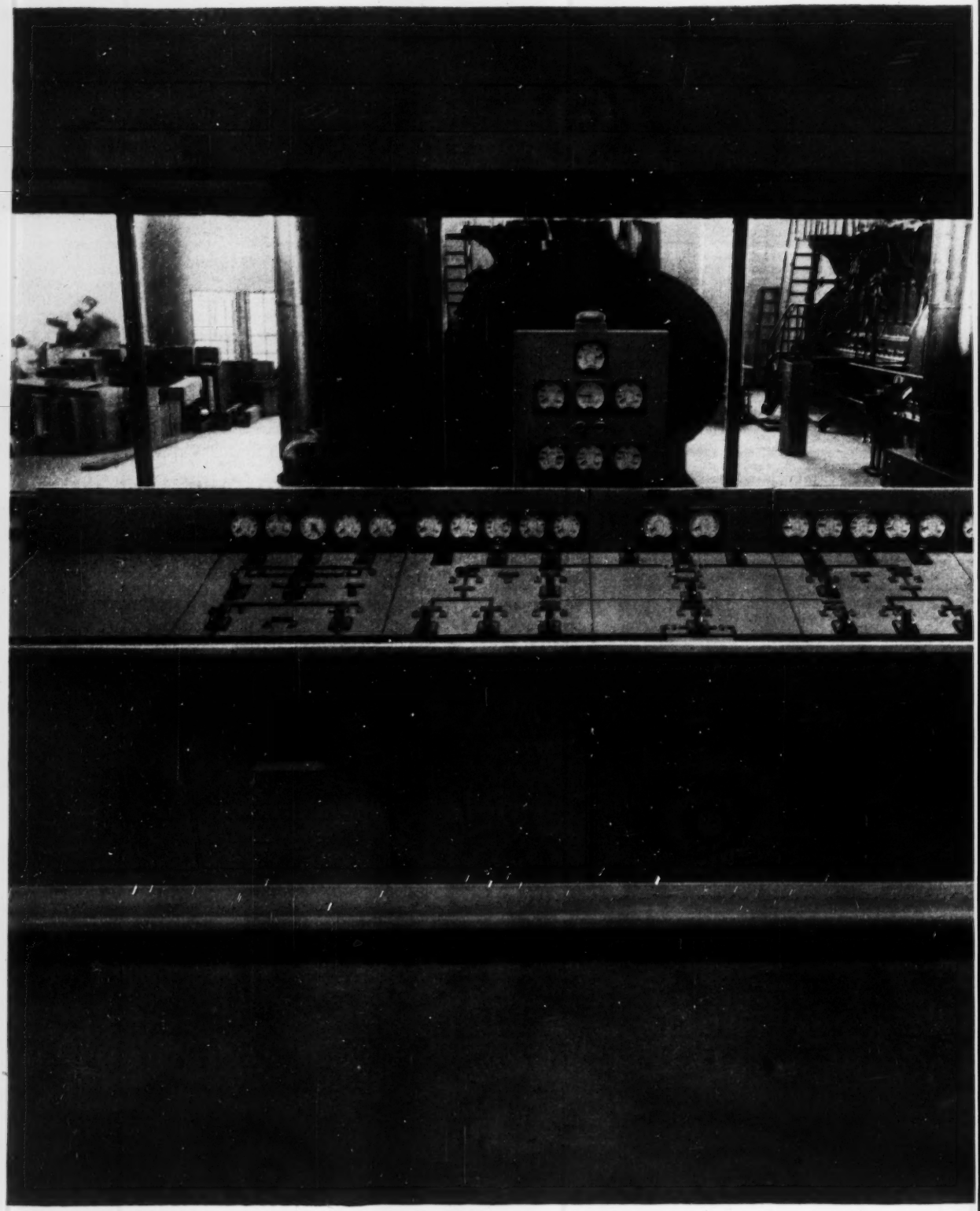
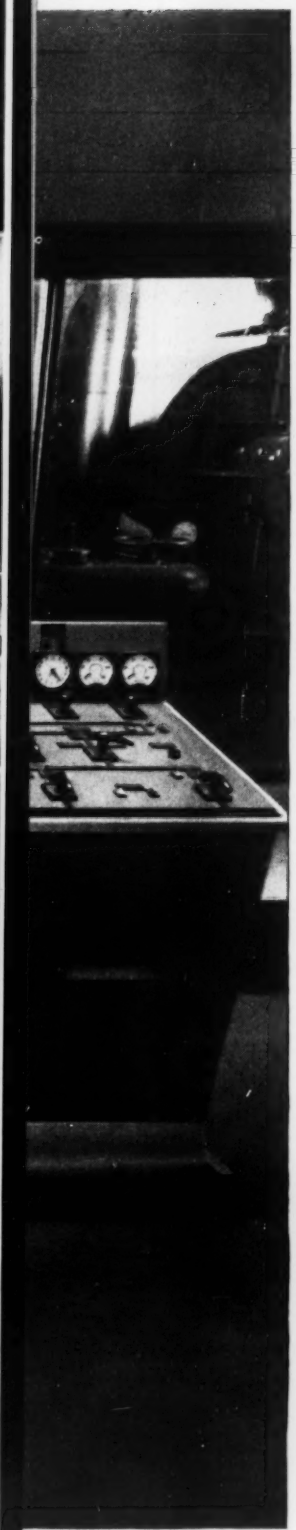


New Hunts Point Sewage Control Plant, Bronx, New York, has a design capacity of 120 million gallons per day (mgd). Future plant expansion will ultimately increase capacity to 150 mgd. J. Livingston & Co., New York City, electrical contractor.



Sound planning and unit equipment assure reliable power at Hunts Point

Service continuity is extremely important to the new 120-mgd Hunts Point Sewage Disposal Works—significant step in the City of New York's pollution control program. Shutdowns would affect a tributary population of 770,000 in a 15,613 acre area.

Based on a careful study during the blueprint stages, engineers for the Department of Public Works, City of New York, designed a duplex electrical distribution system. It assures reliable service by providing dual feeders, switching capacity and transformers, plus electrical tie breakers.

Supplementary power is available from two by-product gas engine generators—each rated 875 kva. These can also be operated as blower drive motors.

Westinghouse power, switching and control equipment play a vital part in the duplex system. Co-ordinated specifically for Hunts Point, this completely unitized line installed easily. It simplifies maintenance due to accessibility of breakers and controls. It assures easy, economical expansion because of its inherent flexibility.

Hunts Point is another instance of Westinghouse participation in sewage control projects—ranging from special engineering assistance to supplying a complete line of electrical distribution equipment.

Call your nearest Westinghouse office for examples in your own area. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa.

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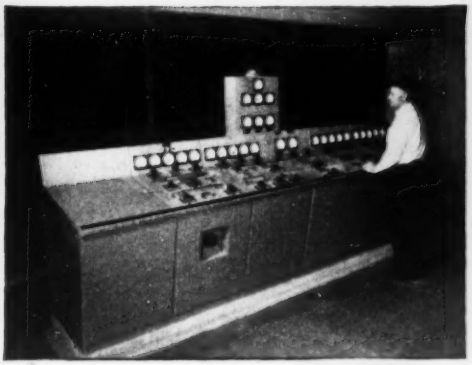
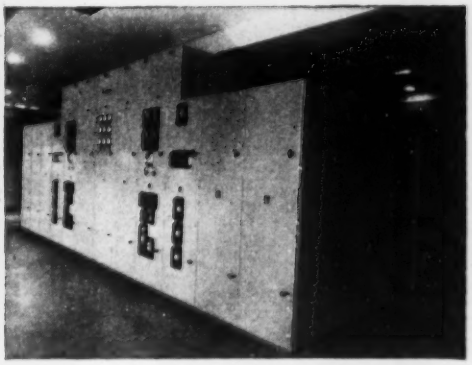


Westinghouse Main Control Benchboard provides finger-tip control of virtually all plant operations. From it, utility and plant power can be controlled through remote switching of feeders and transformers in both systems.



Westinghouse Indoor Metal-Clad Switchgear, 4160 volts, is located back to back with similar switchgear which controls utility power supply. Factory assembled and tested, this compact unit installed easily and saved building space.

SAVE HOURS,

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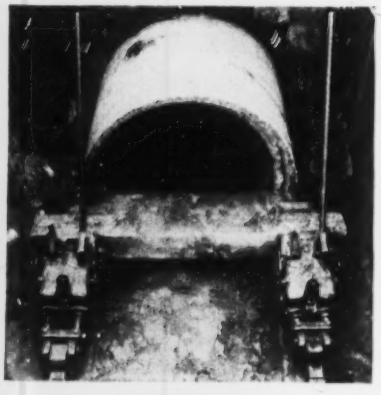
PUSH PIPE UNDER STREETS, TRACKS, walks, floors and other obstacles with a GREENLEE Hydraulic Pipe Pusher. One-man-operated, portable, simple to operate. No tearing up of pavement . . . eliminates extensive ditching, tunneling, back-filling, tamping, repaving. Cuts job time to a fraction. GREENLEE Hydraulic Pipe Pusher often pays for itself on first job. Two sizes—model shown above for pushing ¾ to 4" pipe. Larger unit, below, for pipe over 4", concrete sewer pipe and large drainage ducts. Power pump also available for extra ease and speed of operation.



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UNIT PRICES

Turnpike extension, Pennsylvania

The second project on the Delaware River extension of the Pennsylvania Turnpike was initiated with the award of a $2,594,557 contract to C. J. Langenfelder & Son, Inc. The Langenfelder bid was the lowest of six submitted to the Pennsylvania Turnpike Commission, T. J. Evans, chairman.

The job includes building of structures, and the grading, drainage and paving of 3.62 mi of the extension running through Whitemarsh and Upper Dublin Townships, Montgomery County, Pa.

Wage rates in this area are structural iron workers, $3.32 per hr; tractor operators, $2.68 per hr; and common laborers, $2.05 per hr.

Bidders include:

1C	C. J. Langenfelder & Son, Inc., Baltimore, Maryland	$2,594,557
2	Geo. M. Brewster & Son, Inc., Bogota, New Jersey	2,722,799
6	F. A. Canuso & Son, Philadelphia, Pa.	3,214,742

Bids: 2-3-53 Items	Unit	Quantity	Unit Prices 1 C	2
Clearing & grubbing	ls	1	$60,000	$85,000
Class 1 excavation	cy	575,312	0.78	0.90
Class 2 excavation	cy	15,750	5.50	5.00
Class 2A excavation	cy	3,616	5.50	10.00
Subgrade	sy	238,504	0.18	0.20
6" special subgrade	sy	226,975	0.90	0.80
Shoulders, side roads	lf	5,060	0.25	0.40
Crushed aggr shoulders (turnpike)	lf	25,387	3.00	3.25
Crushed aggr base course type A	cy	80	10.45	10.00
8", type B	sy	956	2.31	1.60
9", type B	sy	1,232	2.42	1.80
10", type B	sy	6,358	2.53	2.00
12", type B	sy	4,034	3.25	2.50
Pa. 2A modified surface	ton	98	5.50	10.00
Plain CC pvmt, var width, 6" depth	sy	40	10.00	10.00
16" width, 9" depth	sy	44	10.00	15.00
10" reinf CC pavement 24' width	sy	98,426	5.75	5.50
variable width	sy	5,693	6.25	6.00
uniform width	sy	14,573	6.25	5.90
9" reinf CC pvmt patching	sy	10	15.00	20.00
Bit surf course, ID-2-2"	sy	2,100	1.21	1.00
ID-2, 2½"	sy	4,802	1.38	1.25
ID-2, 2½	sy	5,782	1.49	1.40
ID-2	ton	128	11.00	10.20
Class A concrete	cy	4,321	64.00	75.00
Class B concrete	cy	4,678	48.00	55.00
Place stl reinf bars	lb	1,044,703	0.03	0.04
Bridge rail, met, type A	lf	1,191	10.00	9.00
met, type B	lf	122	15.00	40.00
Stone backfill for structures	cy	689	8.00	15.00
Membrane waterproofing	sy	21	7.50	5.00
Driving test piles	ls	1	8,000	2,400
Cast-in-pl conc piling	lf	3,108	4.00	3.00
Cl B CC slope wall (spillway)	cy	3	50.00	100.00
Cl B conc pvng for stream beds, 6" depth	cy	149	40.00	35.00
Type E-10 inlets	ea	29	286.00	140.00
Type E-11 inlets	ea	47	312.00	140.00
Type RS inlets	ea	89	375.00	350.00
Type RS-10 inlets modif.	ea	7	400.00	400.00
Type P inlets	ea	8	460.00	400.00
Type RS-A inlets	ea	4	420.00	580.00
2.5' special inlets	ea	8	320.00	300.00
4' special inlets	ea	4	360.00	325.00
Type H inlets	ea	7	340.00	370.00
Fully asph coated CM reducers, 21" x 15"	ea	16	58.00	70.00
reducers, 24" x 18"	ea	4	72.00	85.00
bends, 15"	ea	37	24.00	30.00
bends, 18"	ea	7	29.00	40.00
bends, 24"	ea	1	40.00	50.00
Fully asph coated CM pipe (paved) invert), 15"	lf	724	4.35	4.50
18"	lf	182	5.00	5.00
24"	lf	86	7.40	8.00
42"	lf	32	16.50	16.00
Reinf CC pipe, 15"	lf	1,874	3.40	3.50
18"	lf	4,890	4.30	4.50
24"	lf	752	6.30	6.50
30"	lf	388	8.70	9.00
38"	lf	84	11.30	12.00
42"	lf	180	15.00	15.00
48"	lf	272	19.50	20.00
18" PCC or VC pipe	lf	1,412	4.00	4.00
24"	lf	752	6.00	6.00
30" VC pipe	lf	612	11.70	12.00
PCC, VC or perf fully asph coated CM pipe (paved invert) 18"	lf	2,584	4.00	4.00
24"	lf	644	5.90	6.00
30"	lf	592	8.10	8.00
18" PCC, VC or fully asph coated CM pipe (paved invert)	lf	216	4.10	4.00
24"	lf	36	6.00	6.00
36" VC or fully asph coated CM pipe (paved invert)	lf	20	13.70	13.00
36" perf fully asph coated CM pipe (paved invert)	lf	196	14.00	15.00
42"	lf	296	16.70	17.00
Subgrade drain	lf	515	1.00	1.00
6" underdrain for struct	lf	1,427	2.00	2.00
6" underdrain, type II backfill	lf	256	2.00	2.00
6" fndn underdrain, type A Type I, backfill	lf	21,156	1.50	1.90
type B, type II backfill	lf	736	2.00	1.70
type A, type II backfill	lf	16,001	1.50	1.60
type B, type I backfill	lf	128	1.50	5.00
6" tile outlets	lf	498	1.50	1.20
Coarse aggr for extra depth tile underdrain	cy	398	6.00	6.00
Fine aggr for extra depth tile underdrain	cy	451	6.00	6.00
Pl CC curb gutter, type A	sy	144	8.50	8.50
Pl CC curbing, type B	lf	186	2.20	2.25
type C	lf	328	7.00	3.00
type C-1	lf	125	7.00	2.70
type D	lf	3,567	3.00	4.00
Type 1-C guard fence	lf	1,754	1.40	1.35
End anchorages, type C	ea	12	70.00	60.00
Stabilized fill for medial strip	lf	18,455	3.00	1.85
Top soil for interchange areas, 4" average depth	sy	16,805	0.25	0.35
Painting str stl	ls	1	11,000	14,000
Perm barricade, type A	lf	80	6.00	10.00
Egg & inspector office	ls	1	1,500	4,000
Eng & inspector office alternate	ls	1	1,500	4,000

Water system improvements, Washington

J. N. Williams, Kennerwick, Wash., lowest of 15 bidders has been awarded a $117,270 contract for water system improvements by the city of Prosser, Wash. Roy W. Johnson, Seattle, is the engineer.

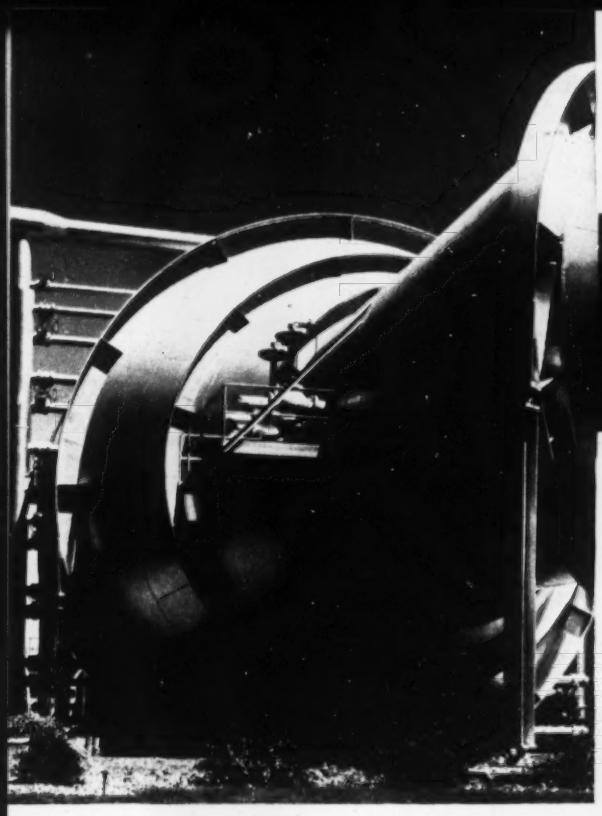
Work on the six months project includes construction of a covered concrete reservoir, 180'x70'x14', holding 1,276,000 gallons of water; repairing the roof over the existing reservoir; and placing cast iron pipe and fittings to replace worn out wood stove pipe.

Skilled workers are being paid $2.51 per hr and common laborers, $1.87 per hr.

Bidders include:

1C	John N Williams, Kennerwick, Wash.	$117,270
2	C. H. Storms, WallaWalla, Wash.	126,441
15	Everett L. Wiggins, Portland, Oregon	167,580
EE	Roy W. Johnson, Seattle, Wash.	134,671

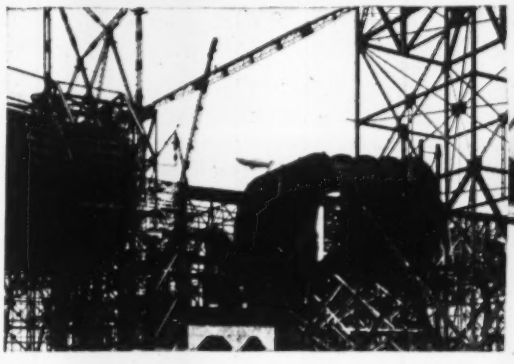
Bids: 1-20-53 Items	Unit	Quantity	Unit Prices 1 C	2
Reservoir excavation	ls	1	$4,349	$3,000
Foundation drains	lf	480	0.85	5.42
Reservoir & valve chamber	ls	1	72,803	81,000
Reservoir piping & valves	ls	1	4,100	11,880
New reservoir electrical	ls	1	2,329	900
Existing reservoir roof	ls	1	5,017	4,260
Purlin lumber, old reservoir	fbm	1,000	0.242	0.35
Existing reservoir elec	ls	1	1,107	500.00
Pipe line excavation	lf	2,290	0.4475	0.8733
Rock excavation	cy	20	12.00	15.00
12" cast iron pipe	lf	2,020	8.93	6.743
12" valves in place	ea	5	2.72	300.00
East Prosser hwy crossing	ls	1	1,500	700.00
Pump line highway crossing	ls	1	1,500	300.00
Wash. state sales tax	ls	1	3,252	3,528

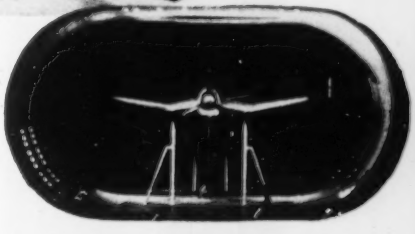


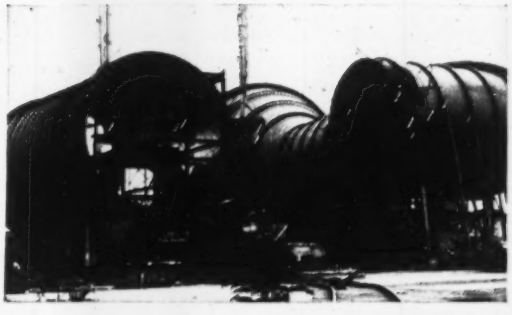
WIND TUNNEL CONSTRUCTION

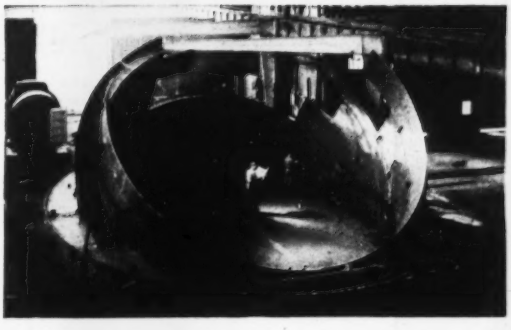
DEVELOPMENT
ENGINEERING
and DESIGN

PITTSBURGH •DES MOINES









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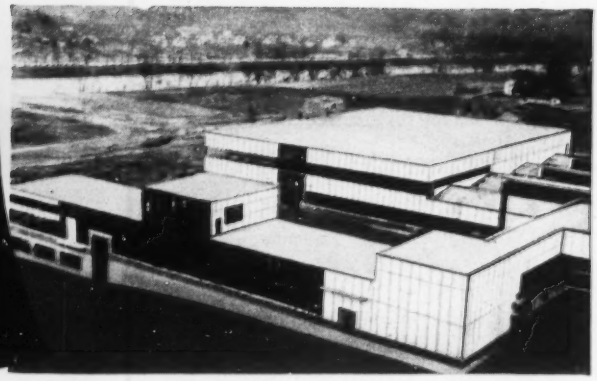
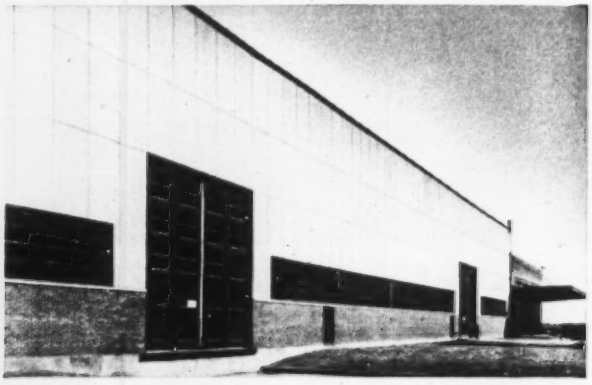
NEWARK (2) . . . 216 Industrial Office Bldg.	DALLAS (1), 1219 Praetorian Bldg.
CHICAGO (3), 1218 First National Bank Bldg.	SEATTLE . . . . . 522 Lane Street
LOS ANGELES (48), ... 6399 Wilshire Blvd.	SANTA CLARA, CAL., 621 Alviso Road

Curtain walls of Cemesto® Panels cut cost of industrial buildings



B. F. Goodrich encloses complete Marietta, Ohio, building with 42,000 sq. ft. of Cemesto Panels. Contractor: J. M. Udan, Wheeling, W. Va.

Attractive, economical use of alternate bands of glass and Cemesto Panels for power plant. Goodyear Tire & Rubber Co., Jackson, Mich.



Unique beauty of Cemesto Panels in a curtain wall. Curtis-Wright Corp., Louisville, Ky. Architect: Albert Kahn Associates, Inc., Detroit, Michigan.

You can speed the construction and reduce the cost of industrial and commercial buildings of every type —with quickly erected, permanent, insulated curtain walls of Cemesto Insulating Structural Panels!

Each Cemesto Panel is a complete, *self-contained* curtain wall unit combining high insulation value—great structural strength—pleasing interior and exterior finish. Quickly attached to steel framing with metal clips, or to wood framing or wood members with nails. Standard sizes readily adaptable to cost-cutting modular erection techniques.

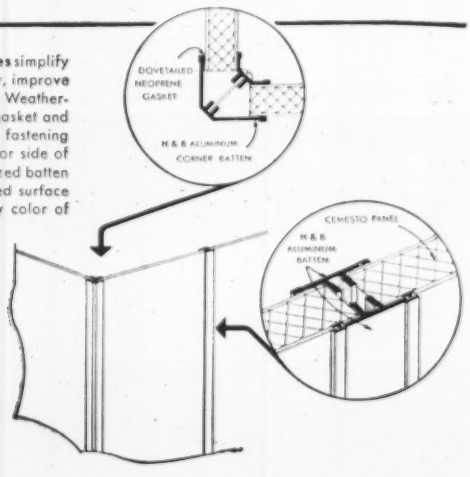
Cemesto Panels consist of a core of Celotex® cane fibre insulation, with *non-combustible* cement-asbestos facings bonded to both sides by a vapor-resistant, moistureproof adhesive. They resist fire, weather and wear. Their insulating core is protected by the patented Ferox® process from dry rot and termites.

The smooth, hard, stone-gray surfaces of Cemesto Panels have high light reflection value. Left unpainted, they provide attractive interior and exterior finish—*never need maintenance*. Cemesto Panels combine harmoniously with brick, stone, wood and glass, or can be used as the sole curtain wall material. Easily demountable, fully salvageable.

Write for information on how to erect curtain walls, roof decks and partitions—faster and at lower cost —with Cemesto Panels. The Celotex Corp., 120 S. LaSalle St., Chicago 3, Ill.

New Aluminum Curtain Wall Accessories simplify application of Cemesto Panels, save labor, improve appearance. Trim, new H & B* Aluminum Weather-stripping Battens have built-in neoprene gasket and continuous thread channels for engaging fastening bolts. Since bolts are applied from interior side of curtain wall, the exterior face of the anodized batten presents a smooth, unbroken, satin-finished surface which blends harmoniously with the gray color of Cemesto Panels.

*H & B Enterprise Corp., Trenton, N. J.



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The Celotex Corporation, 120 S. LaSalle Street, Chicago 3, Illinois

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
March 30 Connecticut

BIDS ASKED—BUILDINGS

Conn., Bridgeport—GARAGE—B.A. 4/2—Dist. P. Wks. Office, Third Naval Dist., Federal Office Bldg., 90 Church St., New York, 7, N. Y., garage, Naval Reserve Training Center, Spec. 37504.

† **Conn., New Haven**—GARAGE—B.A. 4/2—Dist. P. Wks. Office, Third Naval Dist., Fed. Office Bldg., 90 Church St., New York, 7, N. Y., garage, Naval Reserve Training Center, Spec. 37505.

† **Conn., Waterbury**—GARAGE—B.A. 4/2—Dist. P. Wks. Office, Third Naval Dist., 90 Church St., New York, 7, N. Y., garage, Naval Reserve Training Center, Spec. 37502.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **The Lane Constr. Corp.**, 965 E. Main St., Meriden, Conn. LB **$91,113**, est. $90,000. main service apron pavement rigid and flexible Dow Air Force Base, IFB 17-601-53-52, BANGOR, ME. Contracting Officer, Dow Air Force Base, Me. Bids Mar. 16. CD 3/4.

BUILDINGS

LOW BIDS AND CONTRACTS

Aberthaw Co., 80 Federal St., Boston, Mass. CA Est. $100,000. FACTORY, off Water St., AMESBURY, MASS. Bailey Co., Inc., D. C. Bailey, pres., Water St., Amesbury, Mass. CD 3/17.

Canter Constr. Co., 185 Corey Rd., Brookline, Mass. CA Est. **$350,000**. BOTANY BLDG., CAMBRIDGE, MASS. Harvard University, 18 North Harvard St., Allston, Mass. Bids Feb. 20. CD 1/30.

Walsh Brothers, 150 Hampshire St., Cambridge, Mass. CA Est. $334,000. CHAPEL, MILTON, MASS. St. Columbans Foreign Mission Society, Rev. Ambrose Gallagher, 1372 Brush Hill Rd., Milton, Mass. Barry Byrne, 627 Dartmouth St., Evanston, Ill., archt.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
March 31 Maryland
STREETS AND ROADS
March 31 New Jersey

N. Y., New York—HEATING and VENTILATING—B.A. 4/2—New York City Housing Auth., 53 Park Row, New York, Zone 38, heating and ventilating for Carver Houses, Proj. No. NYS-56, Sect. 1, incl. Bldgs. 1 to 6 (inclusive), in area bounded generally by E. 102 St., Park Ave., E. 99 St., Madison Ave., Manhattan Boro. Plans deposit $75. Low bidder withdrew bid because of error. CD 2/27, under LB.

N. J., Woodbridge—B.A. 4/7—Woodbridge Twp. Municipal Bldg., iron and steel construction for sewage plant. Bids 1/20 rejected. L. P. Booz, 117 Smith St., Perth Amboy, consult. engr. CD 1/8.

† **Maryland**—B.A. On Or About 4/17—U. S. Eng., 24 St. and Maryland Ave., P.O. 1715, Baltimore, Zone 3, maintenance dredging Pocomoke River (The Muds) Somerset Co., Fishing Creek, Calvert Co., CIVENG 18-020-53-60. CD 6/9/44.

† **N. Y., Fort Tilden**—B.A. 4/22—U. S. Eng., 80 Lafayette St., New York, Zone 13, bulkhead. $100,000-$500,000.

BIDS ASKED—BUILDINGS

Pa., Springdale—LABORATORY, etc.—B.A. 4/1—Pittsburgh Plate Glass Co., Grant Bldg., Pittsburgh, 3 story, brick, block research laboratory and pilot house. $500,000. Hoffman & Crumpton, 700 Century Bldg., Pittsburgh, archts. CD 9/12/52.

† **N. J., Clifton**—GARAGE—B.A. 4/2—Dist. P. Wks. Office, Third Naval Dist., Federal Office Bldg., 90 Church St., New York, 7, N. Y., garage, Naval Reserve Training Center, Spec. 37506.

† **N. J., Elizabeth**—GARAGE—B.A. 4/2—Dist. P. Wks. Office, Third Naval Dist., Federal Office Bldg., 90 Church St., New York, 7, N. Y., garage, Naval Reserve Training Center, Spec. 37500.

† **N. Y., Glens Falls**—GARAGE—B.A. 4/2—P. Wks. Office, Third Naval Dist., Federal Office Bldg., 90 Church St., New York, Zone 7, 20x24 ft. concrete masonry two-car garage, Naval Reserve Training Center, NOY 76950 (S.F.), Spec. 37501.

† **N. Y., Jamestown**—GARAGE—B.A. 4/2—P. Wks. Office, Third Naval Dist., Federal Office Bldg., 90 Church St., New York, Zone 7, 20x24 ft. concrete-masonry two-car garage, Naval Reserve Training Center, NOY 76957 (S.F.), Spec. 37508.

N. Y., Liverpool (Syracuse)—GARAGE—B.A. 4/2—P. Wks. Office, Third Naval Dist., Federal Office Bldg., 90 Church St., New York, Zone 7, 20x24 ft. two-car concrete masonry garage, Naval Reserve Training Center, NOY 76952 (S.F.), Spec. 37503.

† **N. Y., Newburgh**—GARAGE—B.A. 4/2—P. Wks. Office, Third Naval Dist., Federal Office Bldg., 90 Church St., New York, Zone 7, 20x24 ft. concrete-masonry two-car garage, Naval Reserve Training Center, NOY 76958 (S.F.), Spec. 37509.

† **N. Y., Poughkeepsie**—GARAGE—B.A. 4/2—P. Wks. Office, Third Naval Dist., Federal Office Bldg., 90 Church St., New York, Zone 7, 20x24 ft. concrete-masonry two-car garage, Naval Reserve Training Center, NOY 76956 (S.F.), Spec. 37507.

N. Y., Warsaw—SCHOOL—B.A. 4/9—Bd. Educ. of Central School Dist. No. 1 of Towns of Warsaw, Orangeville, Middlebury, Wethersfield and Gainesville, School Bldg., Warsaw, school. Plans deposit $40. Thomas Lyon White & F. Kirk Helm, Geneva, archts.

† **N. J, Raritan**—SECURITY, etc.—B.A. After April, 1953—U. S. Eng., 80 Lafayette St., New York, 13, N. Y. security bldg., lumber shed and warehouse, Raritan Arsenal, $100,000-$500,000. Turano-Gardner Assocs., 35 W. 53 St., New York, 19, N. Y., archts.

Pa., Pittsburgh—WAREHOUSE—Bids Asked—Wm. M. Orr Co., 1228 Brighton Rd., 2 story, 104x170 ft., brick, block, steel warehouse, Braddock and Thomas St. $300,000. Franklin Douden & Assoc., 522 Century Bldg., archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Lehigh Structural Steel Co., 17 Battery Pl., New York, N. Y., LB, **$475,000**, (welded design);

Erwin-Newman Co., 331 Madison Ave., New York, N. Y., LB **$479,075** (riveted design), furnishing, erecting structural steel Hangar 7, New York International Airport, NYA 290.002, IDLEWILD, N. Y. Port of New York Auth., 111 8th Ave., New York 11, N. Y. Bids Mar. 11. CD 1/20.

† **U. S. Eng.**, 80 Lafayette St., New York 13, N. Y. cancelled bids apron paving, Hancock Field, $100,000-$500,000, SYRACUSE, N. Y. CD 1/15.

† **U. S. Eng.**, 80 Lafayette St., New York 13, N. Y. cancelled bids electrical distr. sys. FORT TOTTEN, N. Y. **$100,000**. CD 2/18.

Associated Constructors, 347 Washington St., Orange, N. J., CA, **$595,525**, Delaware River Intercepting Sewer, South Section, Contract No. 9 in public streets, etc., CAMDEN, N. J. City Purchasing Bd., City Hall, Camden, N. J. Bids Mar. 4. CD 3/11, under LB.

▲ **Berlanti Constr. Co.**, 15 Oakland Ave., Harrison, N. J. CA, **$3,477,248**, general contract;

Electrical Installations, Inc., Elizabeth, N. J., CA, **$69,878**, electrical work, intercepting sewers, pumping station, treatment plant, WOODBRIDGE, N. J. Woodbridge Twp., Municipal Bldg., Woodbridge, N. J. Work under way. Bids Jan. 20. L. P. Booz, 117 Smith St., Perth Amboy, consult. engr. CD 1/8.

PENNSYLVANIA—Pennsylvania Turnpike Comn., 11 N. 4 St., Harrisburg,

Buckley & Co., Inc., 1317 S. Juniper St., Phila., Pa. LB **$494,086**, construct substructure of Schuylkill River Bridge in Upper Merion and Plymouth Twps., bridge will be 1,242 ft. long, Montgomery Co. Bids Mar. 17. CD 2/27.

Marshall Constr. Co., 186 S. 15 St., Harrisburg, Pa. LB **$125,038**, est. $140,000, facilities, roads and repairs to dam at Bendigo Park, Glen Hazel, Elk Co., PENNSYLVANIA. General State Auth., 18 and Herr Sts., Harrisburg, Pa. Bids Mar. 11. CD 2/12.

Frank B. Bozzo, 1122 Denisonview Ave., Pittsburgh, Pa. LB **$227,218**, est. $250,000, bridge ramp, McKeesport Dravosburg Bridge, Dravosburg, PITTSBURGH, PA. Comes. Allegheny Co., County Office, Pittsburgh, Pa. CD 9/18/46.

† **Dist. P. Wks. Office**, Potomac River Naval Command, Naval Gun Factory, Wash., D. C. cancelled bids Mar. 11, incinerator at David W. Taylor Model Basin, NOY 75433, CARDEROCK, MD. CD 3/2.

M. Cain, Inc., 3315 8 St. N.E., Wash., D. C., LB, **$78,447** catch basin construction-manholes and connections at various locations, WASH., D. C. D. C. Govt. Director of Sanitary Engrg., 499 Pa. Ave. N.W., Wash., D. C. Bids Mar. 16.

▲ **Leo Butler Co.**, 9217 51 Ave., College Park, Md., CA, **$1,226,121**, Contr. 3, overpass, East Capitol St. and Kenilworth Ave., for Dist. of Columbia, WASH., D. C. D. C. Govt., Hy. Dpt., 499 Pennsylvania Ave. N.W., Wash., D. C. Bids Feb. 26. CD 3/4, under LB.

DELAWARE—State Hy. Dpt., Dover, Del.

Greggo & Ferrara, Inc., R.D. 1, New Castle, Del., LB, **$157,988** 24 ft. mix asph. pavement 2 mi. Churchman's Road Relocation, Contract 1187, New Castle Co. Bids Mar. 11. CD 2/13.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Belmont Village Homes**, c/o George Foster, archt., 5 Railroad Ave., Freeport, N. Y. Owner Builds. **$2,800,000**. 287 HOUSES, Roosevelt Ave., north of Southern State Parkway, BABYLON, N. Y.

▲ **Robin Hood Homes**, c/o Alwin Cassens, Jr., archt., 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds. **$1,300,000**. 110 HOUSES, 22-acre tract, Belmont Ave., east of Newbridge Rd., EAST MEADOW, N. Y.

▲ **Nelkin & Krown**, c/o Teas & Steinbrenner, archt., Homeland Bldg., Malverne, N. Y. Owner Builds. **$1,000,000**. 58 HOUSES on 14-acre tract, Hillside Ave. and Bengeyfield Dr., EAST WILLISTON, N. Y.

Genar Building Corp., c/o John Burton & Assoc., archts., 163-18 Jamaica Ave., Jamaica, N. Y. Owner Builds. **$440,000**. 44 HOUSES, Horace Harding Blvd. between 148 and 153 Sts., FLUSHING, N. Y.

▲ **P. Kretzer & Son, Inc.**, 32-15 Lawrence St., Flushing, N. Y., CA, **$1,000,000**. WAREHOUSE DISTRIBUTION CENTER and OFFICES, 5-acre tract, Engel St., HICKSVILLE, N. Y. Supreme Sunrise Food Exchange, 131 Main St., East Rockaway, N. Y.

▲ **Sale View Houses**, c/o Teas & Steinbrenner, archt., Homeland Bldg., Malverne, N. Y. Owner Builds. **$1,000,000**. 100 HOUSES, Hicksville Rd., MASSAPEQUA, N. Y.

MacArthur Constr. Co., 101 Park Ave., New York 17, N. Y. CA. **$300,000**. 2 story OFFICE, 100 Wall St., NEW YORK, N. Y. 100 Wall St. Corp., c/o Emery Roth & Sons, archts., 575 Madison Ave., New York 22, N. Y.

▲ **Duncan Park Homes**, c/o Alwin Cassens, Jr., archt., 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds. **$1,000,000**. 64 HOUSES, Seaman's Neck Rd. between Sunrise Hy. and Jerusalem Ave., WANTAGH, N. Y.

▲ **George A. Fuller Co.**, 597 Madison Ave., New York 22, N. Y., CA, Est. **$3,500,000**, concrete, brick INDUSTRIAL SERVICE bldg., JERSEY CITY, N. J. Colgate-Palmolive-Peet Co., 105 Hudson St., Jersey City, N. J. Bids Feb. 18. CD 2/2.

Garden Development Co., 102 E. 25 St., Baltimore, Md. Owner Builds. **$480,000**. sixty-one 2 story, 18x52 ft., brick HOUSES, 3800 block Howard Park Ave., BALTIMORE, MD.

Aldon Constr. Co., Woodward Bldg., Wash., D. C. Owner Builds. **$300,000**. 66 brick, cinder block APARTMENT units, 4757 Chevy Chase Dr., Bradley Hills, BETHESDA, MD. M. Noble, 1019 15 St. N.W., Wash., D. C., archt.

W. M. Chappell, 1346 Good Hope Rd. S.E., Wash., D. C. CA **$522,800**. 1 story, 243x383 ft., brick, concrete, steel storage WAREHOUSE, Tuxedo-Landover Rd., CHEVERLY, MD. American National Red Cross, 17 St. N.W., Wash., D. C. F. E. Davidson, c/o Sears Roebuck & Co., 675 Ponce de L Ave. N.E., Atlanta, Ga., archt. Karsunky-Weller & Gooch, 2011 K St. N.W., Wash., D. C., consult. engrs.

Dan Ostrow Constr. Co., 1422 K St. N.W., Wash., D. C. Owner Builds. **$300,000**. fifty 1 story, 26x38 ft., brick veneer RESIDENCES, Evans Dr. and Brunswick Ave., Carroll Knolls, SILVER SPRING, MD.

▲ **Kay Constr. Co.**, 4101 Kaywood Place, Mount Rainier, Md. Owner Builds. Est. **$10,245,000**. 600 brick HOMES, Connecticut Avenue Estates, WHEATON, MD. J. Seipel, 1620 Columbia Rd. N.W., Wash., D. C., archt.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

† **Va., Norfolk**—TAXIWAY DRAINAGE—B.A. 3/31—P. Wks. Office Headquarters, Fifth Naval Dist., U. S. Naval Base, Zone 11, drainage of bunker hill taxiway at U. S. Naval Base, NOY 77145, Spec. 37624. Plans deposit $10. CD 10/2.

† **W. Va., South Charleston**—RAILROADS—B.A. 4/7—Dist. P. Wks. Office, Headquarters, Fifth Naval District, U. S. Naval Base, Norfolk 11, Va., rehabilitating railroads at U. S. Naval Ordnance Plant, Spec. 36467. Plans deposit $10.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

R. N. Hewitt Corp., 1012 Pennsylvania Ave., Charleston, W. Va., CA, **$142,342**, primary treatment unit of sewage disposal plant, PRINCETON, W. VA. City, Princeton, W. Va.

F. D. Cline Paving Co., Box 349, Raleigh, N. C. CA **$429,807**, street imprvs., FAYETTEVILLE, N. C. City, Fayetteville, N. C. Bids Mar. 5. CD 3/11/52.

† **Skinner & Ruddock**, King St. exten., Charleston, S. C. LB **$137,146**, officers mess, Charleston Air Base, No. 38-081-53-23, CHARLESTON, S. C. U. S. Eng., Customhouse, Charleston, S. C. Bids Mar. 17. CD 2/20.

Delta Pipe Line Constr. Co., Cushing, Okla. CA **$95,000**. 14 mi. 8 in. crude oil trunk line in Caddo and Bossier Parishes, Dixie, LOUISIANA. Interstate Oil Pipe Line Co., Standard Oil Bldg., Shreveport, La. CD 8/21/52.

H. K. Williams Co., 4140 Park Blvd., Louisville, Ky., **Breslin Constr. Co.**, 1433 S. Preston St., Louisville, Ky., **Andrews-Collings Asphalt Co.**, 1330 S. 13 St., Louisville, Ky. and **Henry Bickel Co.**, 1020 E. Chestnut St., Louisville, Ky. CA **$105,405**, imprv. Hill St. from Cypress to Wilson Sts., Manslick Ave. from Hazelwood St. to Taylor Blvd., Hazelwood St. from Manslick St. to Iroquois Homes property of Louisville Municipal Housing Comn., Carrico St. from Woodruff to Lentz Sts., Lentz St. from Carrico to Ashland Sts. and Amherst St. from Hollings Rd. to Douglas Park, LOUISVILLE, KY. City, Bd. P. Wks., City Hall, Sixth and Jefferson Sts., Louisville, Ky. CD 6/1/51.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **Tennessee and Alabama**—Tennessee Valley Auth., New Sprankle Bldg., Knoxville, Tenn., awarded contracts for Shawnee Steam Plant, Tenn., John Sevier Steam Plant, Tenn., Kingston Steam Plant, Tenn., Gallatin Steam Plant, Tenn., Colbert Steam Plant, Ala., Wilson Dam, Ala., Wilson Steam Plant, Ala., Bowling Green Sub-station, Widows Creek Steam Plant, Ala. Total **$3,327,858**.

SHAWNEE STEAM PLANT, TENN.

Federal Cement Tile Co., Hammond, Ind., CA **$70,843**, precast roof and floor slabs.

Weldforged Grating Division, Kerrigan Iron Works, Inc., 1030 Herman St., Nashville, Tenn., CA. **$173,000,** steel floor grating, stair treads and nosings.

GALLATIN STEAM PLANT, TENN.

Ingersoll-Rand Co., Phillipsburg, N. J., CA. **$670,100,** steam condensing units.

COLBERT STEAM PLANT, ALA.

C. E. Foote, Margeram, Ala., CA. **$109,375,** material for surfacing coal storage area and for riprap filter for a steam plant.

WILSON DAM, ALA.

Cornell Dubilier Electric Corp., 1000 Hamilton Blvd., South Plainfield, N. J., CA **$175,390,** distribution capacitors and brackets.

JOHN SEVIER STEAM PLANT, TENN.

Lambert Bros., Inc., Alcoa Hy. S. W., Knoxville, Tenn., CA. **$91,875,** crushed stone.

WILSON STEAM PLANT, ALA.

Westinghouse Electric Corp., 3001 Walnut St., Phila., Pa., CA **$247,156,** low pressure spindle and cylinder blading.

BOWLING GREEN SUB-STATION

Allis-Chalmers Mfg. Co., 1344 Hyde Park Ave., Hyde Park, Mass., CA. **$52,715,** oil circuit breakers.

KINGSTON STEAM PLANT, TENN.

North Bros., 1021 Maryville Pike, Knoxville, Tenn., CA **$58,368,** installing insulation materials;

Allen-Sherman-Hoff Co., Hamburg, Pa., CA **$213,641,** ash handling systems.

WIDOWS CREEK STEAM PLANT, ALA.

Armstrong Cork Co., Ambler, Pa., CA **$226,255,** furnishing, and installation of insulation.

JOHN SEVIER STEAM PLANT AND KINGSTON STEAM PLANT, TENN.

Cramer & Dunlap, 1900 W. 21 St., Tulsa, Okla., transmission line steel towers, CA **$731,360,** John Sevier Steam Plant, Tenn., CA **$117,780,** Kingston Steam Plant, Tenn.

General Electric Co., River Rd., Schenectady, N. Y., reheat stop valves for turbogenerators for 4 steam plants, CA **$66,000,** John Sevier Steam Plant, Tenn.; CA **$60,000,** Widows Creek Steam Plant, Ala., CA $132,000, Colbert Steam Plant, Ala., CA **$132,000,** Kingston Steam Plant, Tenn.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

March 31 Indiana — March 31, April 1 Michigan

April 2 Illinois — April 3 Wisconsin

STREETS AND ROADS

March 31 Indiana — April 1 Michigan

April 2 Illinois — April 3 Wisconsin

Ill., Springfield—B.A. 3/31—City, City Hall, blacktop resurfacing 3 city streets, paving 1 street. $170,000. CD 1/16/52.

† **Illinois**—B.A. 4/3—U. S. Eng., Clock Tower Bldg., Rock Island, emergency levee repairs, Reach 1, Hunt Drainage Dist., Hancock Co., on Mississippi River at miles 350.3 to 35.1 above Ohio River, 44,000 cu. yd. hyraulic placement of earthen fill materials, CIVENG-11-117-53-57. CD 12/8.

OHIO—B.A. 4/8—Ohio Turnpike Comn., 361 E. Broad St., Columbus, Zone 15,

Fulton Co.—Cont. C-54, six steel beam bridges of three and four spans each, supported on rein.-con. abutments and bents and three rein.-con. box culverts, abutments are to be on steel piles; bents to be on spread footings, except for one bridge where cast-in-place rein.-con. piles are to be used, grading, drainage, structures and paving, approx. 3.7 mi. in Constr. Sect. 54 of Ohio Turnpike Proj. No. 1, from point approx. 1,200 ft. east of Tedrow-Morenci Rd. at Turnpike Centerline Station 497 plus 90 and extending eastwardly to point approx. 100 ft. east of Wauseon-Ottokee Rd. at Turnpike Centerline Station 690 plus 36, constr. engineer's office bldgs. and facilities; Cont. C-55, three steel beam bridges of 4-span each, two rein.-con. box culverts bridges to be supported on shallow rein.-con. abutments and rein.-con. piers, abutments to be supported on steel H-beam piles and piers on spread footings, except for one bridge where cast-in-place rein.-con. piles are to be used, grading, drainage, structures, paving, approx. 4.1 mi. in Constr. Sect. 55 of Ohio Turnpike Proj. No. 1 from point approx. 1,300 ft. east of Spies-Handy Corners Rd. at Turnpike Centerline Station 281 plus 42 (Station 281 plus 57.23 back equals Station 281 plus 42 ahead) and extending eastwardly to point approx. 1,200 ft. east of Tedrow-Morenci Rd. at Turnpike Centerline Station 497 plus 90, constr. engineers office bldgs. and facilities;

Cont. C-56, one rein.-con. culvert and 6 steel beam bridges of from 3 to 5-spans each, supported on rein.-con. abutments and bents, abutments of all of these bridges to be on steel piles; piers of four of these bridges to be on spread footings, piers of one bridge to be on steel piles and piers of the other bridge on cast-in-place rein.-con. piles, grading, drainage, structures, paving, approx. 4.4 mi. in Constr. Sect. 56 of Ohio Turnpike Proj. No. 1, from point approx. 2,000 ft. east of Shilling-Ely Rd. at Turnpike Centerline Station 49 plus 10 and extending eastwardly to point approx. 1,100 ft. east of the Spies-Handy Corners Rd. at Turnpike Centerline Station 281 plus 57.43, constr. engineer's office bldgs. and facilities; Cont. C-57, four rein.-con. culverts and two single and two twin steel beam bridges of from three to five spans each, supported on rein.-con. abutments and bents, abutments of all bridges to be on steel piles, piers for all bridges are on spread footings, except the piers for structure 57-2 over Shilling-Ely Rd. which are on piles, grading, drainage, structures, paving approx. 3.8 mi. in Constr. Sect. 57 of Ohio Turnpike Proj. No. 1, from point 800 ft. east of Alvordton Rd. at Turnpike Centerline Station 1031 plus 70 in Williams Co. and extending eastwardly to point approx. 2,000 ft. east of Shilling-Ely Rd. at Turnpike Centerline Station 49 plus 10, Fulton Co., constr. engineer's office bldgs. and facilities. Plans deposit $5 each. CD 1/15.

Mich., Williamston—B.A. 4/13—City, D. Howard Gorsline, clk., sewage disposal plant with outlet facility at river, vitrified plant sewers, control house, 22x28 ft. digest chamber, clarifier, chlorinating equip., sludge dry bed, c.i., piping, grading, fencing, $100,000; 27,500 ft. 8- to 12-in. sanitary sewer lines, 11,000 ft. 6 in. house connections, 1 river crossing inverted siphon, 1,800 ft. 4- to 6-in. force main, $160,000. Plans deposit $20 each, refundable, Wolverine Eng. Co., Mason, engr. CD 9/26/52.

Wis., Fox Point (P. O. Milwaukee)—B.A. 4/13—Village, 8340 N. Lake Dr., 28 ft. 36 in. concrete pipe, 950 ft. culvert, 32,000 cu. yd. ditching. W. Blong, village engr.

BIDS ASKED—BUILDINGS

▲ **Ind., Muncie**—CHURCH—B.A. 4/1—First Presbyterian Church, Muncie, church structure, $1,400,000. Carr & Cunningham, Schofeld Bldg., Cleveland, O., engrs. Graham & Hamilton Muncie, archts. CD 2/20.

Wis., Wisconsin Dells—SCHOOL—B.A. 4/1—School District No. 6, Wisconsin Dells, 1 story, part bsmnt. 141x416 ft. high school, $400,000. Plans deposit $20. John J. Flad & Assocs., 908 W. Johnson St., Madison, archts. CD 8/27.

Wis., Medford—SCHOOL—B.A. 4/2—Bd. Educ., Medford, 1 story, 125x154 ft., 13x44x50x64 ft. high school addn. $300,000. Plans deposit $25. D. M. Schoepke, 519 3 St., Wausau, archt. CD 2/20.

Ill., Chicago—STAFF COTTAGE—B.A. 4/3—State Div. Architecture & Eng., 407 State Capitol, Springfield, staff cottage, Chicago State Hospital. CD 4/9/45.

Mich., Holland—RECREATION—B.A. 4/7—City, Clarence Grevengoed, clk., recreation bldg., incl. gymnasium, auditorium, exhibition rooms, kitchen, first aid, game and storage rooms, $500,000. Louis C. Kingscott & Assoc., 511 Monroe St., Kalamazoo, archts. CD 10/23.

Mich., West Branch—HOSPITAL—B.A. 4/21—City, Clifton Demereset, clk., 2 story, brick, steel Tolfree Hospital addn. $300,000. Plans deposit $25. Frederick E. Wigen, 507 Wischmann Bldg., Saginaw, archt. CD 12/11/50, under Commercial Buildings.

Mich., Highland Park—WAREHOUSE—Bids Asked—Davidson Brothers, 1200 E. Six Mile Rd., brick, masonry 100,000 sq. ft. food warehouse addn., Six Mile and Oakland Rds. $600,000. Extended date. Charles N. Agree, Inc., 1140 Book Bldg., Detroit, archt. CD 1/15.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **James McHugh Constr. Co.,** 6449 South Park Ave., Chicago, Ill. and **M. J. Boyle & Co.,** 2480 N. Elston Ave., Chicago, Ill., LB **$1,732,312,** east sect.;

Bates & Rogers Constr. Corp., 600 W. Jackson Blvd., Chicago, Ill., LB **$1,400,000,** west sect. rapid transit routes, east; East Cleveland to Union Terminal Limits; West, W. 102 to W. 117 Sts., CLEVELAND, O. Cleveland Transit System, 1404 E. 9th St., Cleveland 14, O. Bids Mar. 11. CD 2/3.

Petroleum Piping Contractors, 2010 167 St., Hammond, Ind., CA, oil pipe line terminal at west edge of Peru, incl. loading racks, tanks, pumping facilities;

Bahre Constr. Co., 1015 Southeastern St., Indianapolis, Ind., garage and office bldg. for oil pipe line terminal, Peru, INDIANA. Indiana Farm Bureau Cooperative Assn., 47 S. Penn. St., Indianapolis, Ind. Ray Jones, project engr. CD 9/15.

ILLINOIS—State Div. Hys., Springfield,

rejected bids Feb. 27, bit. on grav. or crushed stone 2.54 mi. F. A. S. Route 754, Hardin Co., LB, **$242,498.** CD 3/3, under LB.

Turner & Farrar Theatres, Orpheum Bldg., Harrisburg, Ill., Separate Contracts 400-car drive-in theater east of city limits, south of Route 146. VIENNA, ILL. CD 1/28.

Union Contg. & Eng. Co., 30 N. La Salle St., Chicago, 2, Ill., LB, **$125,809,** resurfacing N. Wells St. from Kinzie to Clark St., CHICAGO, ILL. City, City Hall, Chicago, Ill. CD 1/27, under LB.

† **Santucci Constr. Co.,** LeClaire and Carl Ave., Skokie, Ill., LB, **$109,000,** waste distr. sys. and pump house, GREAT LAKES, ILL. Ninth naval Dist., Great Lakes Naval Training Station, Great Lakes, Ill. Bids Feb. 24. CD 2/13.

WISCONSIN—State Hy. Comn., State Office Bldg., Madison,

Edward Kraemer & Sons, Plain, Wis., LB, **$73,920.** grav. or crushed stone surf. 2.1 mi. A.F.E. No. 62-311 Viroqua-Genoa Rd., S.T. Hy. 56, 10 mi. and A.F.E. 62-331 Viroqua-Westby Rd., U. S. Hy. 14, 2.1 mi. Vernon Co.; LB **$71,175,** grav. or crushed stone surf. A.F.E. Nos. 52-311, 52-331 and 56-311, U. S. Hy. 14, Cazenovia-LaValle Rd., 17.05 mi.; Richland and Sauk Counties; A.F.E. 52-312, Jct. S.T.H. 58-Sauk County Line Rd., Richland Co., 0.65 mi. Bids Mar. 12. CD 2/20.

BUILDINGS

LOW BIDS AND CONTRACTS

Dawson Evans Constr. Co., 5300 Vine St., St. Bernard, O., CA. **$250,000.** 100x220 ft., concrete, steel BUILDING with 10-ton crane at present location, CINCINNATI, O. Kirk & Blum Mfg. Co., 3120 Forrer St., Cincinnati, O. Frankenberger, Junker & Lensky, 2910 Woodwurn Ave., Cincinnati, O., engrs. and archts. Awarded Mar. 13.

Joseph W. Nordloh, 7115 Miami Ave., Madeira, O. Own Forces. **$900,000.** 18 one-family brick bsmnt. DWELLINGS, Miami Rd. between Shawnee Run and Graves Rd., Indian Hill, CINCINNATI, O.

▲ **Shelby Constr. Co.,** 1108 Canal St., New Orleans, La., withdrew application to construct 334 HOUSES, COLUMBUS, O. **$5,000,000.** Whitehall Planning Commission and Town Council disapproved rezoning tract. CD 11/26, under CA.

▲ **Beaver Constr. Co. (Brady & Friedman),** 8 E. Long St., Columbus, O., abandoned 150 HOUSING units, COLUMBUS, O. **$2,500,000.** Whitehall Planning Commission and Town Council disapproved rezoning of tract. CD 12/22, under CA.

Forman Constr. Co., 105 E. Silver Spring Rd., Milwaukee, Wis. Owner Builds. **$325,000,** twenty-five 24x36 ft., frame, HOMES, GLENDALE, WIS.

Variety Constr. Co., 1201 Turners Cross Road S., Minneapolis, Minn., CA, **$480,000,** general contract, SHOPPING CENTER, incl. 16 stores, 2829 E. Washington Ave., MADISON, WIS. Owner, c/o G. Becker, archt., 1201 Turner Cross Road South, Minneapolis, Minn.

Ward Ross Constr., Pontiac, Mich. CA **$591,240.** brick, concrete elementary SCHOOL addns., Highland and Milford Rds., MILFORD, MICH. Huron Valley Bd. Educ., Milford, Mich. Walter T. Anicka, 617 S. Forest St., Ann Arbor, Mich., archt. Bids Mar. 3.

Siesel Constr. Co., 514 E. Ogden Ave., Milwaukee 2, Wis. CA, 6 story, concrete, steel, brick TELEPHONE EXCHANGE bldg. addn., MILWAUKEE, WIS. Wisconsin Telephone Co., 740 N. Broadway, Milwaukee, Wis. Bids Feb. 26. CD 2/18.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

April 1 Kansas — April 6 Missouri

April 15 Texas

STREETS AND ROADS

April 1 Kansas — April 6 Missouri

April 14, 15 Texas

Minn., Crystal (P. O. Minneapolis)—B.A. 3/31—Village, H. Heise, clk., 5510 W. Broadway, Zone 22, Dist. 6A sanitary sewer collection sys., 21,240 lin. ft. 8-to 12-in. vitr. clay tile sewers, $100,000. Plans deposit $35. Pfeifer & Schultz, 702 Wesley Temple Bldg., Minneapolis, engrs. CD 11/23/51.

† **Tex., Kelley Air Force Base**—RECORDS and PROCESSING BLDG.—B.A. 3/31—U. S. Eng., Box 1229, Galveston, records and processing bldg., Inv. No. Eng. 41-243-53-88. $100,000-$500,000. Extended date. CD 2/25.

Oklahoma—RURAL DISTRIBUTION LINES—B.A. 4/2—Western Electric Co-operative, Anadarko, 148 mi. 69 KVA rural distr. lines, Caddo Co. $375,000. Plans deposit $20. C. H. Guernsey & Co., 2701 N. Oklahoma St., Oklahoma City, engrs. CD 2/13/50.

† **Tex., Austin**—STORAGE—B.A. 4/2—U. S. Eng., 100 W. Vickery St., Forth Worth, addnl. bulk storage and hydrant-refueling facilities, Bergstrom Air Force Base, Inv. No. Eng-41-443-53-49. $300,000. Extended date. CD 2/26.

Tex., Refugio—B.A. 4/2—Refugio Co., Precinct No. 1, Refugio, 21.39 mi. road grading, flexible base (caliche), prime coat, asphalt. $145,000.

Minn., Mankato—B.A. 4/7—Blue Earth Co., B. E. Lee, aud., Bridge No. 7100 over Minnesota River 0.5 mi. north of Judson, two 200 ft. high truss spans, one 70x24 ft. beam span, S.P. 07-505-01 (SAR 20) and S.P. 52-508-01 (SAR 23), Minn. Proj. E.R. 17, $100,000. Plans deposit $2.35. R. C. Deegan, co hy. engr.

North Dakota—RURAL DISTRIBUTION LINES—B.A. 4/7—Dakotas Electric Co-operatvie, Bismarck, 78 mi. rural distr. lines from Devaul sub-station of the Bureau of Reclamation in Grant Co. to sub-station of the Montana-Dakota Utilities Co. at Hettinger, N. D., Grant Co. $275,000. Ulteig Eng. Corp., 1114½ Front St. Fargo, engrs.

† **Tex., Marshall**—RAILWAY—B.A. 4/9—U. S. Eng., Box 61, Tulsa 2, Okla., railway constr., Parcel "B" and access roads, over 5 mi. new railway tracks, Inv. No. Eng. 34-066-53-106. $325,000. Extended date. CD 3/4.

S. D., Chamberlain—B.A. 4/10—City, Lillian Vosberg, aud., sewage disposal plant, 2 lift stations and relay some flooded lines. $200,000. Plans deposit $25. MacGregor & Davis, 1108 Nicollet Ave., Minneapolis, Minn., engrs. CD 2/13.

S. D., Madison—B.A. 4/13—City, sewage plant imprvs. $175,000. Henningson, Durham & Richardson, Standard Oil Bldg., Omaha, Neb., engrs. CD 2/18/52.

Ia., Grundy Center—B.A. 4/16—City, City Hall, sewers and sewage plant, $150,000. Stanley Eng. Co., Hershey Bldg., Muscatine, engr. CD 1/13.

Tex., Houston—Bids Asked—Theodore W. Berenson, c/o Joske's of Houston, 407 Main St., water sys. $40,000.

Tex., Houston—Bids Asked—Theodore W. Berenson, c/o Joske's of Houston, 407 Main St., construction and hard-paving of area for 1,200 auto parking. $90,000. CD 2/11.

BIDS ASKED—BUILDINGS

Kan., Herington—SCHOOL—B.A. 3/31—School Dist. 113, Dickinson and Morris Counties, Abiline and Council Grove, grade school. $400,000. Buck & Lewis, Emporia, archts. CD 9/11/52, under LB.

Minn., Two Harbors—SCHOOL—B.A. 4/2—Bd. Educ., Lake County School Dist., J. R. Lindgran, clk., grade school addn. $300,000. Plans deposit $25. Haxby, Bissell & Belair, 1111 Nicolett Ave., Minneapolis, archts. CD 1/22.

Minn., Grand Rapids—GYMNASIUM and ADMINISTRATION—B.A. 4/7—Bd. Educ. School Dist. No. 1, Itasca Co., I. A. Anderson, clk., gymnasium and administration bldgs. $300,000. Plans deposit $26. A. R. Melander, 603 Alworth Bldg., Duluth, archt.

Tex., Fort Worth—HIGH SCHOOL—B.A. 4/7—Fort Worth Independent School Dist., 409 E. Weatherford St., Meadowbrook Junior High School addns. $375,000. Extended date. Wyatt C. Hedrick, Inc., First Natl. Bank Bldg., archt. CD 3/9.

Minn., Spring Grove—SCHOOL—B.A. 4/9—Bd. Educ., O. J. Sylling, clk., 2 story, school addn. $400,000. Plans deposit $25. Boyum, Schubert & Sorensen, 308 Hoeschler Bldg., LaCrosse, Wis., archts. CD 12/10.

Minn., White Bear Lake—SCHOOL—B.A. 4/9—Bd. Educ., M. G. Houle, clk., 2 story, high school addn., alterations, $900,000. Plans deposit $20. Toltz, King & Day, 1509 Pioneer Bldg., St. Paul, archts. CD 10/22.

Minn., Windom—SCHOOL—B.A. 4/9—Bd. Educ., Mrs. Inez F. Hoyer, clk., 1 story grade school, $500,000. Plans deposit $30. H. H. Swanson, 500 Sexton Bldg., Minneapolis, archt.

Mo., Pacific—SCHOOL—B.A. 4/9—School Dist. R-6, Franklin Co. Bd. Educ., John L. Thiebes, pres., Herbert T. Baker, supt. Schools, 1 story, brick, concrete, masonry L-shaped high school, near western city limits. Charles W. Lorenz, Rte. 13, Box 1378, 700 N. Ballas Rd., Kirkwood, Zone 22, archt. CD 1/28.

▲ Tex., Houston—SHOPPING CENTERS—Bids Asked—Theodore W. Berenson, c/o Joske's of Houston, 407 Main St., Sect. 1, 100,000 sq. ft. masonry shopping center, $10,000,000; Sect. 2, shopping center, $5,000,000. CD 2/26.

SOON LETS CONTRACT—BUILDINGS

Mo., Gray Summit—Mill—Ralston Purina Co., Donald K. English, ch. engr., Engineering Dpt., 835 S. 8 St., St. Louis, soon lets contract 1 and 2 story, part bsmnt., 52x136 ft., 35x76 ft., T-shaped mill, Neal J. Campbell, 911 Locust St., St. Louis, Zone 1, engr. CD 3/6/52, under Mo., Kansas City.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MINNESOTA—State Hy. Dpt., 1246 University Ave., St. Paul,

Barton Contg. Co., 3115 Hennepin Ave., Minneapolis, Minn. CA **$291,618.** grav. base, bit. stabilized and plant-mixed bit. surf. 17.5 mi. between Annandale and 3.5 mi. S.E. of Buffalo, Wright Co. Bids Feb. 13. CD 1/28.

▲ MINNESOTA—State Hy. Dpt., 1246 University Ave., St. Paul.

Nelson, Mullen & Webster, 600 Kasota Bldg., Minneapolis, Minn. CA **$504,617.** c. conc. 11.3 mi. between Pillager and West Jct. of TH 371, Cass and Crow Wing Counties, CD 3/12 under LB;

Central States Constr. Co., Crosby, Minn. CA **$215,771.** c. conc. 3.5 mi. between 2 mi. south of Crookston and College Ave. in Crookston, Polk Co.;

Megarry Bros., St. Cloud, Minn. CA **$243,911.** grav. base, plant-mixed bit. surf. 2.7 mi. in Duluth on Trinity Rd. between 24 Ave. West and T. H. 94, St. Louis Co.; CA **$157,859,** grav. base, plant-mixed bit. surf. 11 mi. between Nisswa and Jenkins, Crow Wing Co., CA **$79,048.** grav. base plant-mixed bit. surf. 9.6 mi. between 0.5 mi. west of Morristown and 0.9 mi. west of Faribault, Rice Co. Grand total $1,201,206. Bids Mar. 6. CD 2/19.

Herbison Constr. Co., Brainerd, Minn. CA **$60,092.** sand-grav. sub-base, bit. stabilized base, road-mixed bit. surf. 0.9 mi. in Hallock from TH 75 to 0.15 mi. east of the east limits of Hallock, HALLOCK, MINN. Kittson Co., A. P. Lofgren, aud., Hallock, Minn. Bids Mar. 3. CD 2/19.

Kansas City Power & Light Co., 14 and Baltimore Sts., Kansas City, Mo., Own Forces, **$990,000,** about 55 mi. electric transmission line. Fort Dodge to Iowa Falls, IOWA.

Blaw-Knox Co., Blawnox, Pa. CA **$65,410.** 700 ft. steel television tower and erection, COLUMBIA, MO. University of Missouri, c/o Dr. Edw. Lambert, T-V dir., Columbia, Mo. Bids rejected for television station, studios, equip. Will re-advertise. CD 3/18, under LB.

† U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. rejected bids Mar. 4, Group E bldgs., Sedalia Air Force Base, Inv. 23-028-53-81, SEDALIA, MO. LB **$117,587.** CD 2/26.

Noble Constr. Co., 1246 S. 14 St., Omaha, Neb., CA **$414,443,** paving streets and alleys in 46 paving districts, OMAHA, NEB. City, City Hall, 18 and Farnam Sts., Omaha, Neb. Bids Feb. 24. CD 3/9.

S. R. Brunn Constr. Co., Railway Exchange Bldg., Kansas City, Mo. LB **$104,890.** sewage plant, near KANSAS CITY, KAN. Shawnee Twp., Wyandotte Co., Kansas City, Kan. Bids Mar. 2. CD 2/19.

▲ † Fred R. Comb Co., 2113 Chicago Ave., Minneapolis, Minn. LB **$1,196,630.** wing hangars and utilities at Smoky Hill Air Force Base, Inv. 23-028-53-89, SALINA, KAN. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. Bids Mar. 13. CD 2/18.

▲ † Peter Kiewit Sons' Co., Airport P.O., Wichita 17, Kan. LB **$1,731,298,** est. $1,778,528. aprons Smoky Hill Air Force Base, Eng. 23-028-53-86, SALINE, KAN. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. Bids Mar. 5. CD 2/19.

† Shaw & Estes, 1407 S. Akard St., Dallas, Tex. LB **$112,917,** est. $122,402. Jet engine test cells, electric unit sub-station, utilities, control house, Wichita Air Force Base, Eng. 23-028-53-92, WICHITA, KAN. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. Bids Mar. 11. CD 2/26.

Southern Line Constr. Co., Falls Bldg., Memphis, Tenn. LB **$150,876,** est. $150,000. 94 mi. rural distr. lines, Bryan Co., OKLAHOMA. Southeastern Electric Co-operative, Durant, Okla. E. R. Taylor & Co., 4107 E. 11 St., Tulsa, Okla., engrs. CD 6/8/50.

M. A. Swatek & Co., Hightower Bldg., Oklahoma City 2, Okla., LB **$106,200,** est. $125,000, drilling, and equipping 6 deep wells, Sect. 1;

Earl W. Baker, Bethany, Okla., LB **$173,880,** est. $190,000. c.i. flow line from wells to city, Sect. 2;

Doerfler Constr. Co., 2514 S. Agnew St., Oklahoma City 8, Okla., LB **$358,052,** est. $390,000, c.i. mains for distr. sys., Sect. 3;

Boecking Constr. Co., 2810 N. McArthur St., Oklahoma City 7, Okla., LB **$66,108,** est. $90,000, 1 m. g. concrete water reservoir, Sect. 4;

Pittsburgh-Des Moines Co., Praetorian Bldg., Dallas, Tex. LB **$84,425,** est. $100,000, 500,000 gal. elevated water tank, Sect. 5, NORMAN, OKLA. City, Norman, Okla. Bids Mar. 13. CD 3/4.

† Manhattan Constr. Co., 2828 Pease St., Houston, Tex. LB **$424,245,** armament and electronics bldg., Serial No. IFB 34-601-53-340, OKLAHOMA CITY, OKLA. U. S. Govt, c/o Directorate of Procurement & Production, Tinker Air Force Base, Oklahoma City, Okla. Bids Mar. 11. CD 2/19.

† United Builders, Inc. & Southwest Constructors, Inc., Box 3272, 201 N. E. 26 St., Oklahoma City, Okla., LB **$162,353.** modernization jet engine test cells, Bldgs. 214 and 215, Inv. No. (IFB) 34-601-53-345, OKLAHOMA CITY, OKLA. U. S. Govt., c/o Tinker Air Force Base, Oklahoma City, Okla. Bids Mar. 9.

Magnolia Pipe Line Co., Andrews, Tex. Own Forces. **$265,000,** 47 mi. crude oil pipe line, northeast sect. of Andrews Co. to southeast corner of county. TEXAS. CD 1/14.

Union Sulphur & Oil Corp., Ballinger, Tex., Own Forces. **$100,000.** gas repressuring project, near BALLINGER, TEX. CD 3/11.

City, City Hall, Main and Harwood Sts., Dallas, Tex., rejected bids Feb. 10, street widen and hard type paving Preston Rd., DALLAS, TEX. Est. **$600,000.** CD 2/3.

City, City Hall, Main and Harwood Sts., Dallas, Tex. rejected bids Feb. 11, storm sewers in Preston Rd., DALLAS, TEX. LB **$173,175.** CD 3/11, under LB.

Archer Development Co., Kress Bldg., Houston, Tex. Own Forces. **$37,500,** c.i. water lines, HOUSTON, TEX. E. S. Butler, 701 Polk St., Houston, Tex., engr.

Archer Development Co., Kress Bldg., Houston, Tex. Own Forces. **$45,000,** site and area dirt and earthwork, incl. grading, open drainage, leveling, filling, etc. HOUSTON, TEX. E. S Butler, 701 Polk St., Houston, Tex., engr.

Archer Development Co., Kress Bldg., Houston, Tex. Own Forces. **$67,500,** street constr., flexible base, asphalt mix topping, HOUSTON, TEX. E. S. Butler, 701 Polk St., Houston, Tex., engr.

Mayflower Investment Co., 912 Commerce St., Dallas, Tex. Owner Builds. **$37,000.** water lines, IRVING, TEX.

Mayflower Investment Co., 912 Commerce St., Dallas, Tex. Owner Builds. **$65,000,** sanitary sewers; **$65,000,** storm sewers, open drainage, IRVING, TEX. CD 3/11.

Mayflower Investment Co., 912 Commerce St., Dallas, Tex. Owner Builds. **$77,000,** some 7 in. concrete paved streets, IRVING, TEX.

Kerr Co., Court House, Kerrville, Tex. Force Account **$125,000,** addnl. unit of low-water dams for flood prevention, KERRVILLE, TEX. CD 12/13/51.

BUILDINGS

LOW BIDS AND CONTRACTS

Tisso & Kostka, Inc., 1650 Carroll Ave., St. Paul, Minn. Owner Builds. **$800,000.** 80 DWELLINGS, HIBBING, MINN. Donahue Eng., Co., Virgina, Minn., archt.

▲† Harold Purtell Constr. Co., Hamm Bldg., Minneapolis, Minn. CA **$1,414,017.** WAREHOUSE Twin Cities Arsenal, Inv. 25-066-53-132, MINNEAPOLIS, MINN. U. S. Eng., 1709 Jackson St., Omaha, Neb. CD 3/16 under LB.

Robinson Bros. & Co., Div. Fort Dodge Iron & Metal Co., 1500 S. E. Scott St., Des Moines, Ia., Owner Builds **$169,139,** 52x300 ft. WAREHOUSE and 32x89 ft. OFFICE, DES MOINES, IA.

Commander Realty Co., c/o owner. CA. brick, cinder block, 30,000 sq. ft. parts and accessories div. DEPOT 3½ acre site, US 71 and Indiana St., KANSAS CITY, MO. The Studebaker Corp., 635 S. Main St., South Bend, Ind. CD 7/7/52.

▲ J. E. Dunn Constr. Co., 927 Holmes St., Kansas City, Mo. Owner Builds. **$2,000,000.** 2 APARTMENTS, 46 and Jefferson Sts., KANSAS CITY, MO. CD 3/6.

Flett Constr., 4325 Troost St., Kansas City, Mo. CA **$340,000,** est. $358,875. Crestview Elementary SCHOOL, 4327 Holmes St. North, NORTH KANSAS CITY, MO. School Bd., c/o Hubert W. Schooling, supt., North Kansas City, Mo. Bids Mar. 10. CD 2/10.

▲ Fruin-Colnon Contg. Co., 1706 Olive St., St. Louis 3, Mo. CA Est. **$1,500,000.** 74x380 ft., 166 to 260 ft. high, brick GRAIN ELEVATOR, 4044 Duncan Ave., ST. LOUIS, MO. Wabash Motor Transit Co., Railway Exchange Bldg., 611 Olive St., St. Louis 1, Mo. Jones-Hettelsater Co., 1911 Baltimore St., Kansas City, Mo., engr.

Fruin-Colnon Contg. Co., 1706 Olive St., St. Louis 3, Mo. CA Est. **$450,000.** 1 and 2 story, part bsmnt., 76x113 ft., 57x138 ft., brick, rein.-con., 27,600 sq. ft. L-shaped OFFICE, 2000 Hampton Ave., ST. LOUIS, MO. Laclede Christy Co., 5900 Manchester Ave., St. Louis Mo. Swerdrup & Parcel, Inc., Syndicate Trust Bldg., 915 Olive St., St. Louis 1, Mo., engr.

▲ Strauss Bros., 3815 Touballin St., Lincoln, Neb. Owner Builds. **$3,000,000.** 300 DWELLINGS in northeast sect. of LINCOLN, NEB. John O. & George R. Unthank, 527 Sharp Bldg., Lincoln, Neb., archts.

Thomas Constr. Co., Schneider Bldg., St. Joseph, Mo. Ca. **$953,487,** general constr., PSYCHIATRIC unit, University of Nebraska Medical College, OMAHA, NEB. Bd. Regents, University of Nebraska, Lincoln, Neb. Bids Feb. 18. CD 2/25 under LB.

O. D. Milligan Constr. Co., Manhattan, Kan. LB **$340,762.** General contract CHURCH and SCHOOL, HAYS, KAN. St. Marys Parish, Hays, Kan. Bids Feb. 26. CD 2/10.

Long Constr. Co., Rialto Bldg., Kansas City, Mo. Est. **$225,000.** 40,000 sq. ft. greeting card MANUFACTURING BLDG., on 3½ acre tract at US 50 and Rainbow Blvd., Westwood, KANSAS CITY, KAN. Hall Bros. Co., 25 and Grand St., Kansas City Mo., Welton Beckett & Assoc., 1114 Grand Ave., Kansas City, Mo., archts.

Sanneman Bros. Constr. Co., 123 E. 21 St., Topeka Kan. LB **$320,576.** General contract Crestview Elementary SCHOOL, TOPEKA, KAN. Bd. Educ., 415 W. 8 St., Topeka, Kan. Bids Mar. 2. CD 12/3.

H. C. Everett & Assoc., 3816 Riley St., Houston, Tex. Owner Builds. **$300,000.** 40 DWELLINGS, ANGLETON, TEX. CD 1/28.

Airconditioned Homes, Inc., 2509 W. Berry St., Fort Worth, Tex., Owner Builds. **$375,000,** 24 DWELLINGS, FORT WORTH, TEX. CD 1/21.

R. C. Clegg & Assoc., 810 Janisch St., Houston, Tex. Owner Builds. **$350,000.** 42 DWELLINGS, HOUSTON, TEX. CD 2/13.

Davison & Miller, Inc., Freeway Manor Addn., Houston, Tex. Owner builds. $300,000. 30 DWELLINGS, HOUSTON, TEX. CD 1/22.

Wm. G. Farrington Co., 1661 Tanglewood St., Houston, Tex., CA. **$344,500,** design and construct 16 two story APARTMENTS, HOUSTON, TEX. Syndicate, c/o River Oaks Corp. (Sponsors), Hugh Potter, Jr., 3272 Westheimer St., Houston, Tex. CD 3/9.

Frank J. Gaskey Constr. Co., 1430 N. Rice St., Houston Tex., Owner Builds. **$390,000.** 15 frame, masonry DWELLINGS, concrete slab fdn., Spring Branch area, HOUSTON, TEX. CD 1/23.

Homes of Quality, Inc., 204 Winkler Dr., Houston, Tex. Owner Builds. **$300,000.** 10 masonry type DWELLINGS, HOUSTON, TEX. CD 3/12.

S. J. Kelley, 3747 Seminole St., Houston, Tex. Owner Builds. $375,000. 45 DWELLINGS, HOUSTON, TEX. CD 2/4.

Marvin Henry Builders, Inc., 1219 W. 43 St., Houston, Tex. Owner Builds. **$375,000,** 40 DWELLINGS, HOUSTON, TEX. CD 1/30.

Marvin Henry Builders, Inc., 1219 W. 43 St., Houston, Tex., Owner Builds. $350,000. 35 DWELLINGS, Sect. 1 of "Scenic Loop" HOUSTON, TEX. CD 12/21/51.

Milton Constr. Co., Inc., Baytown, Tex., CA **$332,215,** 34 DWELLINGS, HOUSTON, TEX. Charles E. Blanton, 4324 Jim West St., Houston, Tex. CD 2/4.

Frank Reinhart, c/o Duffey Realty Co., 2230 W. Holcombe St., Houston, Tex., Own Forces. **$400,000.** 25 luxury type DWELLINGS, HOUSTON, TEX. CD 1/23.

C. H. Rouse, 3204 Milam St., Houston, Tex., Owner Builds. $325,000. 33 DWELLINGS, HOUSTON, TEX. CD 2/13.

Sharp Constr. Co., 1242 Chippendale St., Houston, Tex. CA, $310,100. 15 DUPLEXES, Sect. 1, Scenic Woods, HOUSTON, TEX. Leonard S. Sharp, 1242 Chippendale St., Houston, Tex. CD 1/30.

Sharp Constr. Co., 1242 Chippendale St., Houston, Tex., CA. $345,000. 30 DWELLINGS, HOUSTON, TEX. Frank W. Sharp, 2202 Rosslyn St., Houston, Tex. CD 2/3.

Spring Woods Oak Corp., Witte Rd., Houston, Tex. Own Forces. $325,000, 40 DWELLINGS, HOUSTON, TEX. CD 2/4.

Sullivan & Horton Constr. Co., Pasadena, Tex., CA **$328,185,** 10 two story masonry DWELLINGS, HOUSTON, TEX. Longwoods Corp., c/o Jerry Cox, 1808 Broadway, Houston, Tex. CD 2/6.

Rex C. Williams, The Builder, 3810 Aberdeen St., Houston, Tex., Owner Builds. $325,000. 33 DWELLINGS, HOUSTON, TEX. CD 2/3.

Rex C. Williams, The Builder, 3810 Aberdeen St., Houston, Tex., Owner Builds. **$300,000.** 27 DWELLINGS, HOUSTON, TEX. CD 2/3.

Williams & Webster, 2202 Rosslyn St., Houston, Tex. Owner Builds. $300,000. 27 DWELLINGS, HOUSTON, TEX. CD 1/30.

Wm. H. Williams, 4029 Tennyson St., Houston, Tex. Purchase and Hire. **$310,000,** 18 dwellings, near Spring Branch, HOUSTON, TEX. CD 1/22.

The Mooney Aircraft Corp., Mooney Airport, Wichita, Kan. Purchases Day Labor. **$200,000.** aircraft mfg. PLANT unit, KERRVILLE, TEX. CD 2/4.

▲ Centex Constr. Co. (Sponsor), 4911 Greenville Ave., Dallas, Tex., CA **$2,500,000,** construct, manage,

finance 297 unit frame, stucco exterior HOUSING, KINGSVILLE, TEX. Dpt. Navy, Officer in Charge of Constr., Naval Air Station, Kingsville, Tex., and Eighth Naval Dist., U. S. Naval Base, New Orleans, La. Awarded Mar. 13. Sponsor will build by own forces. CD 8/29.

Warren Petroleum Corp., McLean, Tex., Own Forces. $560,000. REFINERY expansion, MCLEAN, TEX. CD 8/25.

Monarch Constr. Co., Naples, Tex., Owner Builds. $300,000. HOUSING, NAPLES, TEX. CD 10/27/52.

E. J. Burke & Sons, 1100 Goliad St., San Antonio, Tex. CA. $300,000. 36 DWELLINGS, SAN ANTONIO, TEX. Fidelity Defense Housing, 1100 Goliad St., San Antonio, Tex. CD 1/22.

W. R. Craig, 140 W. Arrowhead St., San Antonio, Tex. Purchases, Day Labor. $435,000, 64 frame type DWELLINGS, SAN ANTONIO, TEX. CD 1/16.

Quincy Lee Constr. Co., 211 Olmos Dr. West, San Antonio, Tex., Owner Builds. $365,000, 50 DWELLINGS, SAN ANTONIO, TEX. CD 1/22.

Alfred E. Pampell, Builder, Spring Branch, via Houston, Tex., Owner Builds. $365,000, 18 DWELLINGS, SPRING BRANCH, TEX. CD 2/13.

Cal-Tex Tile Co., Tyler, Tex., Purchases, Day Labor. $275,000, PLANT, TYLER, TEX. CD 11/6.

Sletten Constr. Co., 1701 10 Ave. N., Great Falls, Mont. CA $339,500. general contract. grade SCHOOL, HAVRE, MONT. School Dist. 16, Havre, Mont. Awarded Mar. 10. CD 5/26/52.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
April 14 Washington
STREETS AND ROADS
April 8, 9 California

† **Calif., Moffett Field**—GENERATOR, etc.—B.A. 4/8—Dist. P. Wks. Office, Twelfth Naval District Constr. Div., Room B-114, San Bruno, installing emergency generator, communication cable and lighting, Radio Room, Hangar No. 1, U. S. Naval Air Station, NOY 76177, Spec. 37723. Plans deposit $10.

† **Calif., San Francisco**—STEAM and MECHANICAL SERVICES—B.A. 4/8—Dist. P. Wks. Office, Twelfth Naval Dist., Constr. Div., Room B-114, San Bruno, Calif., replacement of steam and mechanical services on north and south piers, San Francisco Naval Shipyard, NOY 77170, Spec. 37735. Plans deposit $10.

† **Oregon**—B.A. 4/23—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Grants Pass, two 16x7 ft. top seal radial gates, two dots embedded metalwork for Savage Rapids Dam Rehabilitation, Grants Pass Proj. Inv. No. DS 3912. CD 9/7/44.

BIDS ASKED—BUILDINGS

▲ **Wash., Seattle**—DORMITORY—B.A. 4/8—Seattle University, Broadway Ave. and Madison St. 6 story, 77,800 sq. ft. dormitory, $1,200,000. J. W. Maloney, Central Bldg., Seattle 4, Wash., archt. Plans deposit $50. CD 9/24.

Calif., Sacramento—SHELTERS—B.A. 4/10—American Machine & Foundry Co., 1085 Commonwealth Ave., Boston, Mass., electronic equipment shelters at Mather Air Force Base, Approx. $500,000.

Wash., Renton—CHURCH—B.A. 4/10—Most Rev. T. A. Connolly, archbishop of Seattle, 906 Terry St., Seattle, 120x104 ft., rein.-con. church, piling fdn., for St. Anthony's Church. $300,000. Plans deposit $50. J. W. Maloney, Central Bldg., Seattle, Zone 4, archt. CD 1/30.

Calif., Oakland — SCHOOL — B.A. 4/14 — Oakland City Unified School Dist., 1025 Second Ave., Lockwood Elementary School, $500,000. Plans deposit $25. CD 10/30/45.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **George E. Miller**, 111 Morrill St., Reno, Nev. LV $208,488, ordnance storage igloos, jet fuel storage, etc., Nellis Air Force Base, ENG-53-118, LAS VEGAS, NEV. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Mar. 13. CD 3/4.

ARIZONA—State Hy. Dpt., 17 Ave. and Jackson St., Phoenix,

H. J. Hagen, Globe, Ariz., LB, $453,765 select material, aggregate base bit. 4.7 mi. U. S. 60, Gila Co. CD 2/24, under LB.

ARIZONA—State Hy. Dpt., 17 Ave. and Jackson St. Phoenix,

Lyle Price Contractor, Box 548, Flagstaff, Ariz., LB, $173,989, grading, draining new alignment 8 mi. State Rte. 73, Apache Co.;

Pioneer Constructors, Box 2768, Tucson, Ariz., LB, $238,834, wid'n., resurf. 10 mi. Tucson-Nogales Hy., U. S. 80, Pima Co. CD 6/12.

Arizona Sand & Rock, Box 596, Phoenix, Ariz., LB, $313,699 Gate Park Imprvt. District, sewer and paving project, PHOENIX, ARIZ. Maricopa Co. Court House, Phoenix, Ariz.

G. J. Norris, Joshua Green Bldg., Seattle, 1, Wash., LB, $100,488, est. $75,000. 15 rearing ponds, 2 holding ponds and fishway at Klickitat Salmon Hatchery, Glenwood, WASHINGTON. State Dpt. Fisheries, Smith Tower, Seattle, 4, Wash. Bids Mar. 12. CD 2/26.

† **D-H Paving Co.**, Vancouver, Wash., LB, $123,226 est. $126,974, grading, surf. with b.conc., asph. cement and asph. streets and parking areas also concrete sidewalks, Inv. 53-47, CAMP HANFORD, WASH. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids Mar. 12. CD 2/16.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles,

Clyde W. Wood & Sons, P. O. Box 620, North Hollywood, Calif.; **J. A. Payton**, P. O. Box 191, San Bernardino, and **Geo. Herz & Co.**, P. O. Box 191, San Bernardino, Calif., LB, $2,308,278, grading, paving 7.2 mi. between Los Angeles Co. line and Archibald Ave., San Bernardino Co.;

Norman I. Fadel, 7101 Radford Ave., North Hollywood, Calif. LB, $87,412, grading, surf. 1.3 mi. near Cathedral City and 1 mi. west of Rt. 64, Riverside Co.;

G. W. Ellis Constr. Co., 8240 Lankershim Blvd., North Hollywood, Calif., LB, $309,917, wid'n. resurf. 38.8 mi. portions between Halloren Springs and Nevada State Line, San Bernardino Co. Bids Mar. 12. CD 2/19.

† **Campbell Constr. & Equip. Co.**, 1150 Folsom St., San Francisco, Calif., LB, $120,370, Post Exchange Bldg. road and parking area, Spec. 1751, BEALE AIR FORCE BASE, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif. Bids Mar. 12. CD 2/19.

▲ **Walter C. Groshong**, 4335 California St., Long Beach, Calif., and **Smith-Rice Derrick Barges, Inc.**, Berth 24, Long Beach, Calif., LB, $1,898,548, quay wall and rein.-con. bulkhead at Pier No. 1, moving 3 transit sheds, LONG BEACH, CALIF. Long Beach Harbor Dpt., 1333 E. Embarcadero, Long Beach, Calif. Bids Mar. 5.

George Miller Constr. Co., 3032 Bandini Blvd., Los Angeles, Calif., LB, $111,024, sanitary sewers in Second St. and Arden Blvd. Sewer District;

N. J. Tomovich, J. P. Evans, Inc., 354 S. Spring St., Los Angeles, Calif., LB, $350,318, Ohio Ave. and Federal Ave. Relief Sewer, LOS ANGELES, CALIF. City, City Hall, Los Angeles, Calif. Bids Mar. 4.

Kevry Constr. Co., Inc., 655 Peralta Ave., San Leandro, Calif., LB, $63,792, pipe lines, Spec. LS 592, OAKLAND, CALIF. East Bay Municipal Utility Dist., 512 16 St., Oakland, Calif. Bids Mar. 13. CD 3/3.

† **Stolte, Inc.**, 8451 San Leandro St., Oakland, Calif., LB, $225,683, water supply and storage modifications, ENG-04-167-53-62, Spec. 1732, McClellan Air Force Base, SACRAMENTO, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif. Bids Mar. 12.

▲ **John Delphia**, P. O. Box 313, Patterson, Calif., LB $1,439,530, Big Carson Dam, Lagunitas Creek below Alpine Dam, SAN RAFAEL, CALIF. Marin Municipal Water Dist., 875 Fourth St., San Rafael, Calif. Bids Mar. 10. CD 1/22.

† **Collins Electric Co., Inc.**, P. O. Box 867, Stockton, Calif., LB, $247,927, modification and extension of electric power facilities, Sub-station A & B, Spec. 1703, TRAVIS AIR FORCE BASE, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif.

BUILDINGS

LOW BIDS AND CONTRACTS

Jordan & Sons, Sonna Bldg., Boise, Idaho, LB, $327,715 Campus Elementary SCHOOL, BOISE, IDAHO School Bd. Administration Bldg., Boise, Idaho. Hummel, Hummel & Jones, 1324 St., Boise, Idaho, archts. CD 12/6/50.

▲ **Howard S. Wright Co. Inc.**, 414 Pontius St., Seattle, Wash., and **American Pile Driving Co.**, Everett, Wash., CA. Total cost $17,000,000. PAPER MILL, EVERETT, WASH. Scott Paper Co., 3631 E. Marginal Way, Seattle, Wash. CD 11/9/51.

Vezey Constr. Co., 3760 Ardley St., Oakland, Calif., CA, $147,143, warehouse, extension to change room, transportation office, electric shop, other work at REFINERY, AVON, CALIF. Tide Water Associated Oil Co., Avon, Calif. Awarded Mar. 4.

▲ **Fred S. Macomber**, 8818 Melrose Ave., Los Angeles, Calif., LB, Sch. A $1,302,000; Sch. B, $1,304,000; Sch. C, $1,285,000; Sch. D, $1,287,000, 184-low rent HOUSING UNITS, BAKERSFIELD, CALIF. Kern Co. Housing Auth., 517 Roberts Lane, Bakersfield, Calif. Bids Mar. 11. CD 2/25.

Floyd Borchardt, P. O. Box 1028, Stockton, Calif., CA, $396,500, Calaveras Joint Union High SCHOOL, SAN ANDREAS, CALIF. Calaveras Joint Union High School Dist., Court House, San Andreas, Calif. Awarded Mar. 16. CD 6/2/52.

Maino Constr. Co., 2238 S. Broad St., San Luis Obipo, Calif., LB, $338,300, group of DAIRY and POULTRY BLDGS., Calif. Polytechnic College, SAN LUIS OBISPO, CALIF. State Div. Architecture, 217 W. First St., Los Angeles, Calif. Bids Mar. 11. CD 2/19.

Douglas W. Edwards, 1625 N. Durant St., Santa Ana, Calif., CA. $802,500, 107 frame DWELLINGS, Olive, Edinger, Pomona and Lowell Sts., SANTA ANA, CALIF. Santa Ana Estates, 1625 N. Durant St., Santa Ana, Calif.

Mac Isaac & Menke, 3440 E. 14 St., Los Angeles, Calif., CA. $200,000, steel frame, 67,300 sq. ft. tilt-up wall WAREHOUSE, SOUTH GATE, CALIF. Fibreboard Products, Inc., 4744 Pacific St., Vernon, Calif. Awarded Mar. 4.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
STREETS AND ROADS
April 1 British Columbia

N. S., Yarmouth—FERRY TERMINAL—B.A. 4/1—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., ferry terminal. Plans deposit $20. O. S. Cox, Dpt. P. Wks., Bedford Row, Halifax, engr.

Ont., Toronto—B.A. 4/7—Canadian National Rys., Central Region, K. Huffman, ch. engr., Union Station, Toronto, subway, Dundas St. East extn. near Logan Ave., Subway under railway tracks. $100,000. Plans deposit $50. CD 11/30/45.

BIDS ASKED—BUILDINGS

▲ **Alta., Ralston**—LABORATORY—B.A. 3/31—Defence Constr. Ltd., 400 Kensington Bldg., Winnipeg, Man. steel, rein.-con. central laboratory Sheffield Experimental Station, $1,250,000. Plans deposit $100. K. F. Hurst, 400 Kensington Bldg., Winnipeg, Man. engr.

Ont., Ottawa—NURSING EDUCATIONAL—B.A. 4/7—Ottawa Civic Hospital Bd., Carling Ave., nursing educational building at hospital. $750,000. Plans deposit $100. J. A. Ewart, 165 Sparks St., Hazelgrove & Lithwick, 53 Queens St., archts. CD 1/23/52.

Sask., Regina—RESERVE DIVISION—B.A. 4/8—Defence Constr. Ltd., 400 Kensington Bldg., Winnipeg, Man. RCN Reserve Division Bldg. H.M.C.S. "Queen" $300,000. Plans deposit $100. K. F. Hurst, c/o owner, engr.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Burns & Dutton Co. Ltd., 5400 First St. W., Calgary, Alta., CA, Est. $350,000, officers mess addn. R.C.A.F. Station, CLARESHOLM, ALTA. Dpt. National Defence, 400 Kensington Bldg., Winnipeg, Man. Bids Jan. 7. CD 12/12.

O. K. Constr. Co. Ltd., 9531 111 Ave., Edmonton, Alta., CA, $150,000, roads and driveways, EDMONTON, ALTA. Central Mortgage & Housing Corp., Ottawa, Ont. K. F. Hurst, 400 Kensington Bldg., Winnipeg, Man., engr.

Evans, Coleman & Evans Ltd., foot of Columbia St., Vancouver, B. C., CA, $179,000, supply 67,000 ft. 6- to 12-in. c.i. water pipe, VANCOUVER, B. C. City, City Hall, Vancouver, B. C. Awarded Mar. 6. CD 11/16/51.

Greater Winnipeg Water Comn., 185 King St., Winnipeg, Man. Own Forces, $200,000, water mains and domestic service connections, ST. VITAL, MAN.

Marino Constr. Co., 7 Sibley Ave., Toronto, Ont., CA $213,849, 8.3 mi. 6- to 12-in. water mains in West Hills Area, TORONTO, ONT. Public Utilities Comn. of Scarborough Twp., 1666 Kingston Rd., Toronto, Ont. Bids Feb. 18, awarded Mar. 9. CD 2/9.

BUILDINGS

LOW BIDS AND CONTRACTS

R. Vollan, 5509 111 Ave., Edmonton, Alta., CA, $100,000 1 story, 93x118 ft., concrete, brick WAREHOUSE, EDMONTON, ALTA. McLellan Trading Co., 99 Cordova St., Edmonton, Alta. Rule, Wynn & Rule, 11432 Jasper Ave., Edmonton, Alta., archts. CD 11/10.

W. H. Cooper Constr. Co., Ltd., 21 Hunter St. E., Hamilton, Ont., CA, $215,000, rein.-con., steel, masonry FACTORY, HAMILTON, ONT. Super Oil Seal Mfg. Co., Ltd., 508 Wellington St. N., Hamilton, Ont. Awarded Mar. 13.

J. Robert Page Ltd., 211 Davenport Rd., Toronto, Ont. CA, $160,000, 1 story 140x160 ft., steel, brick food FACTORY Clayton Ave., TORONTO, ONT. McCormick's Ltd., 60 Osler St., Toronto, Ont. C. G. Maclean, 577 Eglinton Ave. W., Toronto, Ont., archt. Awarded Mar. 16.

Benjamin Robidas, 164 Dumonlin St., Drummondville, Que. CA, $363,521, CHURCH, Notre Dame St., VICTORIAVILLE, QUE. Parish of St. Martys Canadiens, Rev. A. Roux, cure, Victoriaville, Que. Bids Mar. 2. CD 2/25.

Bird Constr. Co. Ltd., 7 and Smith Sts., Regina, Sask., CA, $500,000, rein.-con. retail STORE, REGINA SASK. S. S. Kresge Co. Ltd., Regina, Sask. Stock. Ramsay & Assocs., 1745 Scarth St., Regina, Sask., archts. Awarded Mar. 5.

ALASKA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Grove, Shepherd, Wilson & Kruge**, 120 Sixth Ave. N., Seattle, Wash., LB $326,810, 2 story, 35x250 ft., frame nurses' quarters, Inv. 53-48. Ladd Air Force Base, ALASKA. U. S. Eng., Anchorage, Alaska. Bids Mar. 12. CD 3/4.

† **Carson Constr. Co.**, P. O. Box 1153, Helena, Mont., LB $678,000, 30x45 concrete utility bldg., 1,850 ft. 6 and 10 in. water line, 970 ft. 18 and 48 in. sewer outfall, electric sub-station, rehabilitate water tank and 2 water pumphouses, Naval Station, Spec. 31623, KODIAK, ALASKA. P. Wks. Officer, 17th Naval Dist., Kodiak, Alaska. Bids Mar. 12. CD 2/18.

PUERTO RICO

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Vicente Valdivieso, Inc., Box 338, Cayey, Puerto Rico, CA. $556,132, 3.859 Km. Utuado-Barceloneta Rd. Proj. S-140 (2) UTUADO, PUERTO RICO. Bd. of Awards, Dpt. P. Wks., Santurce, Puerto Rico. Bids Feb. 4, awarded Feb. 10. CD 1/23.

(Proposal Advertisements see pp. 152 to 155)

Federal Reserve Board surveys house market, finds it big

Though some mortgage lenders think the housing market may be reaching the saturation point (ENR Mar. 19, p. 100), the Federal Reserve Board's annual survey of buying intentions shows that more people plan to buy houses this year than planned to buy at the start of 1952.

This year's survey is so optimistic it has Federal Reserve officials a bit worried. In 1951 and 1952, the study raised warning signals. In both years, it was reported that there was no increase in home buying planned and there might be a decrease.

This year there was less caution. When consumers were interviewed during January and February, their plans showed a definite—though not a large—increase.

• **Other goods up too**—In addition, consumers said they would buy more automobiles and more household hard goods like TV sets and stoves than during 1952.

Surveys in 1951 and 1952 indicated consumers thought it was a poor time to buy because of high prices.

The switch this year is not based on any rush to beat expected price rises, but just the opposite. One of the surprises of the 1953 survey is a sharp decline in the number of consumers who expect prices to go up during the year. Last year, more than half thought prices would rise. This year, only 16% expect increases.

• **Better off**—This year's strong buying plans stem from a growing belief by consumers that they're better off. Last year, 62% said they were either better off or holding even. This year it was 70%; last year 35% said they were losing ground—this year 28%. The number who didn't have any impression, one way or the other, was the same each year—3%.

Nearly all non-farm consumers think their income will hold even or improve during the year. There's no report on farmers, whose net income is expected to drop 5% during the year.

This combination of a steady prospect on prices, and an improvement in their own finances, means consumers are deciding it's not such a bad time to buy houses after all. After two years of protesting, there are signs that consumers are getting used to Korean levels.

Last year, only about a fifth of those interviewed thought it was a good time to buy. This year, the number jumped to a third. There are no exact figures on buying plans from the survey so far.

• **Not a forecast**—Each year the Federal Reserve points out that the survey is not a forecast of business. It can't pick up sudden changes, like the buying wave which followed the outbreak of Korean fighting in mid-1950. But the studies have called major turns in consumer thinking, just the same.

Federal Reserve officials are a little edgy about the strongly optimistic tone of the new findings. For one thing, they stress that business was good during January and February—that if it just keeps up that pace, it would justify consumer plans for the year as a whole. They say that the survey does not mean necessarily that an expansion from present levels is in the works.

Statistical slash

Economy move hurts U.S. building figures

The government economy program is causing serious damage to the federal agency compiling construction statistics—the former Construction Division of the Department of Commerce, transferred since 1950 to the National Production Authority.

Now, NPA is being stripped down to a skeleton organization. Former Commerce Department units in NPA like the Construction Division are getting the same drastic treatment in the present cutdown.

In its NPA setup, the former Construction Division functions as the Production and Requirement Branch of the Building Materials Division. The NPA division has been cut from 100 to 50 persons and notices are out for further reduction to 30.

Luckily, the director of the NPA division is John L. Haynes, formerly chief of the Commerce Department's Construction Division. He knows the importance of attempting to preserve as much as he can of the government's central agency for gathering and publishing construction data.

• **Terrific problems**—But Haynes is up against terrific problems. He has to make cuts as ordered along with all other NPA divisions. When the Commerce Department units were shifted to NPA, they were assured that they would be taken back intact after the emergency. But that was under another administration. Today, the Commerce orphans receive no special consideration.

Even more serious than the actual cuts in personnel are the dislocating effects of priority privileges in federal Civil Service. A discharged employee with seniority and war-veteran status has the right to displace anyone of lesser rank working in a similar job within the same department. This means that experienced people on the construction statistics staff are being "bumped" by competent but untrained personnel whose jobs have faded out.

• **Tragic lapse**—Intelligent handling of construction data requires a great deal of judgment that can be acquired only through careful training and long experience. Wholesale displacement of trained personnel is almost bound to cause a tragic lapse in the accuracy and reliability of government construction statistics.

Present government statistics are none too reliable, as the Construction and Civil Development Committee of the U. S. Chamber of Commerce pointed out recently. "Today," the committee said, "the quality of figures is poorer than at any time in the postwar period."

This condition is not due to lack of competence in the government's statistical agencies, the committee declared. Rather, the committee reported, it is due to failure of businessmen and Congress to recognize the importance of sound data and the shortcomings of the present statistics.

• **Essential series**—Most essential, in the committee's judgment, are these two series: (1) The dollar volume of construction put in place, and (2) the number of non-farm dwelling units started. The committee urged that effort be concentrated on improvement of these two series before more ambitious programs are attempted.

Continuing dislocation of the Commerce Department statistical unit in NPA would further impair the value of the first series. The second series is compiled by the Bureau of Labor Statistics, which likewise is suffering from displacement of experienced personnel.

Aluminum forecast

Industry growth may fill needs by year's end

Aluminum probably will be in tight supply for the next few months. But toward the end of this year, increasing productive capacity may make it possible for aluminum producers to meet civilian demand as well as supply the priority needs of the military. That's assuming, of course, that the volume of military demand doesn't increase.

This is the gist of a forecast from Aluminum Co. of America, No. 1 producer of the light metal. Board Chairman A. V. Davis and President I. W. Wilson called attention to the fact that the industry's primary productive capacity had increased nearly ninefold since 1939. By the end of this year, the Alcoa officials predicted, annual capacity would be about three billion pounds.

• **Aluminum uses**—Eventually, Alcoa predicts, aluminum will be used in very large volume as a building material, for cars and aircraft, for electrical conductors, chemical processing equipment, and in many other ways.

To expand capacity, Alcoa brought half of its new smelter at Wenatchee, Wash., into production, started production at a new plant at Rockdale, Tex., and expanded smelting capacity at Point Comfort, Tex. Production of alumina, the powder from which aluminum is made, is being stepped up to supply the new smelters. Among other new plants, Alcoa is building one at Lancaster, Pa., to make screw-machine products, rivets, fasteners, and nails.

• **Wheland moves**—Meanwhile Chattanooga's Wheland Co. moved a step nearer to setting up its proposed $50-million smelter in the TVA area (ENR Feb. 5, p. 124). The Defense Production Administration approved a certificate of necessity allowing it to take fast depreciation on $35.5 million of the plant's cost.

Fred Stephens, assistant to Gordon Street, Wheland's president, said that one of the sites the company is considering is at Johnsonville, on Kentucky Lake near Waverly, Tenn. "We've had at least one hundred site proposals from various localities," he said. "But we haven't considered that phase of the project very seriously as yet."

What really worries Wheland right now is the problem of getting private financing for the new project. In addition to its Tennessee plant, Wheland plans to build a $20-million installation somewhere on the Gulf Coast, to make alumina from South American bauxite.

Mortgage exchange organized in Hartford

A group of Hartford, Conn., businessmen have followed the example set last fall by New York City's Lawyers Mortgage & Title Co. (ENR Nov. 27, '52, p. 71) by starting another market place where mortgages can be bought and sold.

The new exchange, called the Connecticut Mortgage Investment Exchange, or "CMIX," will deal in first and second mortgages on Connecticut properties. It will be headed by Frank A. Burke, who has been an administrative officer with the FHA.

Mortgages can be offered here for sale, for origination by an investor, or for exchange. CMIX will charge a $15 fee for listing and evaluation of the property. On closing a sale, buyer and seller will pay 1% of the unpaid balance of the mortgage. The exchange also will provide mortgage servicing.

Meanwhile, Harry Fromkes, president of Lawyers Mortgage & Title, says that the New York exchange has aroused a lot of interest among mortgage investors, including savings banks and life insurance companies. Fromkes says he has received inquiries about the exchange from all over the country.

The New York exchange, Fromkes says, is working out plans to trade in GI and FHA mortgages on a national basis. At present, it deals only in conventional mortgages on properties in the New York area.

Construction trends

The business outlook for the balance of 1953 is bright, though not glittering. Strong forces are operating within the economy to prevent any serious slide in business activity. You can be sure that there will be some bumps in the road. But they probably won't be big enough to affect industrial construction much.

The recent burst of new inventory formation could spell trouble in the second half. Look at the figures and you see that the inventory pileup in the fourth quarter of 1952 was at an annual rate in excess of $8 billion. Incomplete data hint that you can expect this rate to persist throughout the first and second quarters of 1953.

• **Tough**—Perhaps the main reason you can be confident that no drastic letdown is in sight is the fact that the economy has shown plenty of toughness and resiliency by taking previous adjustments in stride.

Farmers, exporters and soft-goods producers have all gone through a shakedown period without upsetting business in general, or the construction industry. Commodity prices which rose so dramatically—and disturbingly—after the Korean outbreak are once again in fair balance. Consequently, any readjustment affecting producers of durable goods is not likely to find the rest of the economy very vulnerable.

Military expenditures and business spending for new plant and equipment promise to provide sturdy supports for construction during the months ahead. Military spending currently is running at an annual rate of about $51 billion. Barring a major war or a complete policy shift in Washington, you can expect spending to rise another billion or so during the course of 1953. And capital expenditures for all industry—which totaled $21.9 billion on 1952—promise to rise by at least a billion this year. When the annual McGraw-Hill survey of business' spending plans for 1953 is finished, we'll give you the retails.

• **Consumer spending**—Consumer spending, which rose quarter by quarter all through 1952, is currently barreling along at an annual rate of almost $224 billion. Even if there should be some dip in consumer outlay this year, you can be fairly certain that Mr. and Mrs. American will unzipper their wallets in 1953 to the tune of at least $225 billion.

Another source of strength—and one that you'll find operating over the long pull—is the tremendous program of industrial and agricultural research now being undertaken by American producers. Total outlay for this program of scientific research topped $3.5 billion in 1952. A substantial share went into construction of laboratories.

So when you add it all up, you just don't find a real letdown in sight this year.

Another arrest

Builder charged with paying VA official

Just when it looked as if the federal government had wound up its probe of San Diego frauds on GI loans (ENR Mar. 12, p. 106), FBI agents made another arrest.

Elmer J. Hubner, president of Hubner Building Co., has been arrested and charged with paying $7,000 between October, 1950, and April, 1951, to Francis G. Paige, when Paige was a loan guaranty officer in the San Diego VA office. Paige, who already is serving a prison sentence, was alleged to have given preferential treatment to appraisal reports on homes in Hubner's building tracts.

• **False claims**—More than a year ago, Mrs. Ione Hubner, Hubner's divorced wife, was charged with encouraging veterans to make false claims for benefits under the Servicemen's Readjustment Act. She was sales manager of the Hubner firm.

The false claims involved applications for GI mortgage loan insurance.

In similar cases, the government has said veterans claimed they were going to live in the houses, when in fact they were selling their GI rights. Now Assistant U. S. Attorney Morris Sankary says he has filed an information in Mrs. Hubner's case. This means she is willing to be brought to trial without indictment by a grand jury.

• **1,200 homes**—Court documents say Hubner Building Co. was owned by Hubner, Alton B. Jackson, Wrelton L. Clarke, and their wives. The firm built more than 1,200 homes in 14 tracts around San Diego, all under VA-insured financing obtained through the San Diego Federal Savings & Loan Association. Jackson and Clarke, both officers of San Diego Federal at the time, have been sentenced to prison terms.

Many of the cases already handled have involved bribery of Paige, who as a VA official was in a strategic position to get loans approved. Builders Chris Cosgrove and Roy Brockbank already have been sentenced to prison terms for bribing Paige. Two associates of Brockbank in Mobilhomes Corp. of San Diego, William Bettles and Kenneth Glazebrook, also were charged with bribing Paige. Glazebrook's indictment later was dismissed. Bettles pleaded "nolo contendere," and was fined on a lesser charge of "supplementing" Paige's income.

Michigan governor pushes Mackinac bond sales

Michigan's young governor, G. Mennen Williams, showed up in New York City this week to sell the proposed three-mile bridge across the Straits of Mackinac (ENR Mar 12, p. 25) to investment bankers and municipal bond dealers.

Williams told a meeting of 300 financial men that the traffic engineering firm of Coverdale & Colpitts estimates that in 1957, first full year when the bridge could be open to traffic, about 1,850,000 vehicles could be expected to use the bridge. By 1992, the projected estimate is that over 5,300,000 vehicles would be bringing in nearly $14 million annually in tolls. Revenues over the years, it is figured would thus be enough to pay interest on and retire a $96-million bond issue by 1993.

Whether Williams' sales talk was successful will be seen next month, when the Mackinac Bridge Authority is expected to call for bids on the bond issue. B. J. Van Ingen & Co., Inc., New York investment banking house, is forming a syndicate to bid on the bonds. Construction contracts for $66 million already have been awarded.

Sewer fees to pay disposal plant and collection costs

Knoxville, Tenn., plans to finance its new sewage disposal plant and interceptor system out of sewer fees, Kenneth B. Hill, of the Chicago engineering firm of Greeley & Hansen, told the Knoxville Technical Society last week. But more than that, the sewer fees also will finance expansion, maintenance and replacement of the present collection system.

The Knoxville Utilities Board will levy the sewer fees, which will range from 60% at first, down to 30% of water bills of sewer-connected customers. Hill estimates average annual amortization over 30 years of a $6-million bond issue at $300,000, plus annual operating costs of between $344,000 and $378,000.

Hill would like to see construction of the sewage disposal plant start this July. He says total construction estimate of $6 million because of rising costs has risen from $5.2 million since the plant was approved at a referendum in 1951.

Toll financing

Virginians talk financing north-south turnpike

John J. Wicker, Jr., the Richmond lawyer who wants to build a north-south toll road in Virginia through a semi-private corporation (ENR Feb. 26, p. 23) ran into trouble last week at a hearing held by a study committee of the state legislature. Nobody but Wicker, it seemed, wanted to have toll roads financed by the method he suggested.

And some people didn't want toll roads at all.

A Richmond investment banker, Walter W. Craigie, said he thought the financing method was unsound. Wicker plans to have his Virginia Interstate Turnpike Corp. turn its common stock over to the state and to local governments, and then sell tax-exempt revenue bonds, to be paid off from the tolls. Cost of the 200-mi road, from Washington to the North Carolina boarder, is estimated at about $200 million.

• **Cloak**—Craigie said that investment bankers are "gravely concerned about the borrowing of the cloak of tax immunity for pseudo-public corporations."

He also believes that the State Highway Department would be able to sell revenue bonds backed by the tolls at an interest rate ½% cheaper than the semi-private, semi-public setup proposed by Wicker.

During the hearing, Gen. James A. Anderson, State Highway Commissioner, said that Virginia would have to boost its 6-cent-a-gallon gasoline tax to 8 cents if the state were to do "a reasonably adequate" job on its free roads system.

• **Tourist trade**—Spokesmen for the Virginia and Richmond Chambers of Commerce agreed that toll roads might be necessary, but said they thought the State Highway Department should have charge of them. But Walter N. Chinn, president of the Virginia Travel Council, argued that "toll roads would injure tourist facilities seriously." He also thought that the real highway traffic problem was traffic within cities, and that toll roads would do nothing to solve this.

During the hearing, Commissioner Anderson remarked that the cost of right-of-way was taking about 20% of construction money now, compared with about 7% before the war.

February record

Private building gains faster than public work

Total construction put in place during February was about $2.2 billion, the highest dollar volume for February on record and 10% above February, 1952.

These are the figures reported last week by the Construction Division of the Department of Commerce, now assigned to the National Production Authority and having its troubles in the economy drive (page 149).

• **Pacesetter**—Private construction is setting the pace. The U. S. reports indicate that private work put in place in February was nearly $1.6 billion, up 12% from February, 1952. Public construction during the month was $632 million, up 6% above the same 1952 month. This ratio continues about the same as in January. For the first two months of this year, total private construction is up 11%, while public construction is up 6%.

• **Commercial gains**—In the private field, the fastest gainer is commercial building, which shows an increase of 35% for the first two months as compared with the same 1952 period. About $210 million worth of commercial construction has been put in place so far this year. New housing units account for $141 million of the total, up 13% for the first two months. Public utility construction so far this year is $549 million, up 7%.

• **Big increases**—In public construction, the big increases are in:

Industrial building up 36% with $215 million put in place. This is due largely to the Atomic Energy Commission.

Highways—up 42%, with $185 million in place.

Sewers and waterworks—up 16% with $104 million in place.

School and hospital construction have gained over last year, but not as much as other categories. Both types of building are running 6% ahead of last year, with $269 million and $66 million put in place, respectively.

There have been drops in:

Public housing—down 32% to $90 million.

Military and Naval construction—down 20% to $200 million.

Conservation projects (dams, earthworks, etc)—down 3% to $107 million.

Business briefs . . .

• **U. S. industry** plans to spend nearly $27 billion on new plant and equipment in 1953, according to figures compiled by the Department of Commerce. That's up 2% from this time last year.

• **Home mortgage debt** now totals $58 billion, after climbing $6.2 billion in 1952, according to estimates by the Home Loan Bank Board. This increase wasn't as large as the advance in mortgage debt in 1950 and 1951. But it's bigger than for any other year in history.

• **Number of firms** in the contract construction business, counting trade contractors like plumbers, carpenters, and so on, grew faster than any other major industry during 1952. Commerce figures that the average number of contractors grew nearly 6% to a total of 396,000. That's nearly twice the average number in 1940.

• **Merritt-Chapman & Scott Corp.** took in record gross revenues of nearly $18 million last year, according to the annual report. Backlog of construction work was $118 million, up 44% from the preceding year, and a peacetime high for the company. However, 1952 profits dropped to $1.5 million, compared with nearly $1.9 million in 1951.

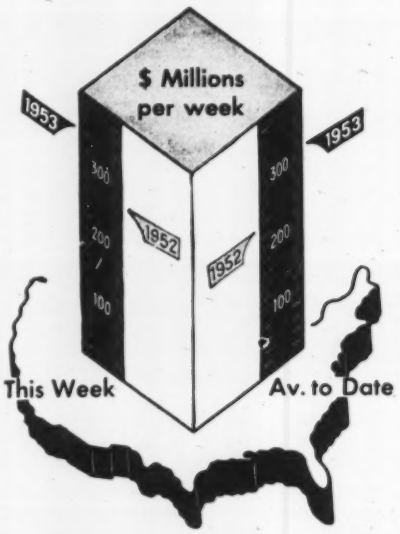
• **Allied Chemical & Dye Corp.'s** $200-million debenture issue, biggest chunk of public financing in history by an industrial company, will be offered next week. Most of the money will go for construction.

• **School bonds** are getting harder to sell in Michigan. The city of Clawson has accepted bids tentatively for an $810,000 bond issue, on which it would pay 3.9% interest. For a wealthy investor, this tax-exempt interest equals a taxable yield of 10% or more.

• **New Jersey's** state building authority is going ahead with a $17-million construction program, now that the state superior court has upheld its legality and its right to sell bonds. The authority's right to sell bonds without a public referendum had been ques-

Activity This Week

As reported to ENR (in millions of dollars)



Amount of contracts let

	This Week	1953	1952	% chge
		Cumulative 13 wks		
Federal	$29.8	$407.5	$434.8	−6
State and Municipal	80.7	1,177.7	906.3	+30
Total pub.	110.5	1,585.2	1,341.1	+18
Total priv.	233.6	2,524.4	1,686.9	+50
U. S. Total	$344.1	$4,109.6	$3,028.0	+36

Contracts by type of work

Waterworks	$2.3	$59.6	$65.4	−9
Sewerage	8.4	91.4	49.7	+84
Bridges	5.4	219.9	77.5	+184
Highways	25.4	301.4	266.9	+13
Earthwork, waterways	1.9	91.9	99.1	−7
Buildings:				
Public	35.2	414.6	386.7	+7
Housg., pub.	15.9	186.4	236.5	−21
Housg., priv.	88.0	1,063.9	690.0	+54
Commercial	28.9	224.1	121.5	+84
Industrial	87.1	1,047.0	698.1	+50
Unclassified	45.6	409.2	336.6	+22
Total	$344.1	$4,109.6	$3,028.0	+36

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR indexes		Base Year = 100 1913	1926	1949
Constr. cost.	Mar.	587.44	282.38	123.15
	Feb.	587.19	282.26	123.09
Bldg. cost.	Mar.	424.89	229.68	120.78
	Feb.	425.24	229.87	120.88
Volume	Feb.	480	195	139

OFFICIAL PROPOSALS

APPEAR HERE EACH THURSDAY. PROPOSAL ADVERTISEMENTS ACCEPTED UP TO 10:30 A.M. FRIDAY FOR THE ISSUE DATED THE FOLLOWING THURSDAY. SEND ALL ADVERTISEMENTS TO CLASSIFIED ADVERTISING DIVISION, 29TH FLOOR, McGRAW-HILL PUB. CO., INC., 330 W. 42 ST., N. Y. 36, N. Y.

Bids: April 8, 1953

Contracts C-54, C-55, and C-54&55

NOTICE TO BIDDERS

Sealed proposals will be received by the Ohio Turnpike Commission for the performance of Contracts C-54, C-55 and C-54&55, which last contract is a combination of Contract C-54 and Contract C-55 in one single contract.

The work covered by Contract C-54 consists generally of the construction of grading, drainage, structures, and paving of approximately 3.7 miles in Construction Section 54 of Ohio Turnpike Project No. 1, beginning at a point about 1200' east of Tedrow-Morenci Road at Turnpike Centerline Station 497+90 in Fulton County and extending eastwardly to a point about 100' east of Wauseon-Ottokee Road at Turnpike Centerline Station 690+36 in Fulton County, and the construction of engineer's office buildings and facilities on or near the site of the work.

The work covered by Contract C-55 consists generally of the construction of grading, drainage, structures, and paving of approximately 4.1 miles in Construction Section 55 of Ohio Turnpike Project No. 1, beginning at a point about 1300' east of Spies-Handy Corners Road at Turnpike Centerline Station 281+42 (Station 281+57.23 back equals Station 281+42 ahead) in Fulton County, and extending eastwardly to a point about 1200 feet east of Tedrow-Morenci Road at Turnpike Centerline Station 497+90, all in Fulton County, and the construction of engineer's office buildings and facilities on or near the site of the work.

The work covered by Contract C-54&55, the principal structures to be built under said contract, and the major items of construction therefor, are the same herein set forth for both Contracts C-54 and C-55.

In Section 54, the principal structures to be built are six steel beam bridges of three and four spans each, supported on reinforced concrete abutment and bents, and three reinforced concrete box culverts. The abutments are to be on steel piles. The bents are to be on spread footings, except for one bridge where cast-in-place reinforced concrete piles are to be used.

In Section 55, the principal structures to be built are three steel beam bridges of four spans each, and two reinforced concrete box culverts. The bridges are to be supported on shallow reinforced concrete abutments and reinforced concrete piers. The abutments are to be supported on steel H-beam piles and the piers on spread footings, except for one bridge where cast-in-place reinforced concrete piles are to be used.

Approximate quantities of the major items of construction for Contract C-54 are as follows:

Embankment in Place	1,060,000 cu. yds.
Structural Concrete	3,650 cu. yds.
Reinforcing Steel	600,000 lbs.
Fabricated Structural Steel	997,000 lbs.
10" Reinforced Concrete Pavement	122,000 sq. yds.

Approximate quantities of the major items of construction for Contract C-55 are as follows:

Embankment in Place	302,000 cu. yds.
Structural Concrete	2,415 cu. yds.
Reinforcing Steel	308,000 lbs.
Frabricated Structural Steel	400,000 lbs.
10" Reinforced Concrete Pavement	115,000 sq. yds.

Copies of the Plans and General Specifications for said contracts will be available on or about March 18, 1953, and thereafter (and in any event on and after March 20, 1953) for public inspection or purchase at the office of the Chief Engineer, Ohio Turnpike Commission, 361 East Broad Street, Columbus 15, Ohio. These documents may be purchased from said chief engineer for the following sums, per set, which sums are non-returnable:

General Specifications for Ohio Turnpike Project No. 1	$ 5.00
Plans, (also soil profiles and boring logs) per set	15.00
Cross Sections, per set	25.00

Forms or copies of all remaining contract documents, including Proposals for Contract C-54&55, Contract C-54 and Contract C-55; of the Affidavit which must accompany such Proposal; of this Notice to Bidders; of the Special Provisions applying to said Contracts; of the Contract to be entered into with the (or each) successful bidder; and of the Contract Bond to be furnished with such Contract will be furnished upon request and without charge to any interested person at the aforesaid chief engineer's office on and after March 24, 1953. One set (or, if required, a reasonable additional number) of said documents will be furnished without charge to each purchaser of either of the aforesaid sets of plans.

All proposals must be on the form prescribed by the Commission and must comply with the terms and conditions set forth in the Contract Documents. Each proposal must be accompanied by a certified check on a solvent bank, payable to the order of the Ohio Turnpike Commission, in an amount not less than 5% of the total amount bid in such proposal. If a bidder bids on Contract C-54&55 and also on either or both of Contracts C-54 and C-55, one certified check will suffice, if in an amount not less than 5% of the total amount bid by him on Contract C-54&55. If a bidder bids on both of Contracts C-54 and C-55, but not on Contract C-54&55, he shall submit separate certified checks with each bid. The Commission may at any time cash any such check. Each such check, or the proceeds thereof, will be held by the Commission as a guaranty that, if any proposal guaranteed thereby is accepted, a contract will be entered into and the performance of the proposal secured. Each such check, or the proceeds thereof, will be returned or forfeited as provided in paragraphs G-3.03 and G-3.06 of the aforesaid General Specifications; provided that if there be a forfeiture, it shall be of an amount equal to 5% of the total amount bid in the proposal with respect to which the forfeiture occurs, and any excess thereover will be returned to the bidder.

All bids must be received at or before 10:00 A.M., Eastern Standard Time, April 8, 1953, in the offices of the Ohio Turnpike Commission, 361 East Broad Street, Columbus 15, Ohio. At said hour, the bid box will be removed to the Nell House Hotel, 41 South High Street, Columbus, Ohio where all proposals will be publicly opened and read.

If the bid of the lowest and best bidder for Contract C-54&55 is lower and better than the bids, taken together, of the lowest and best bidders for Contracts C-54 and C-55, respectively, Contract C-54&55 will be awarded (if any award be made) to said lowest and best bidder for it, and no award will be made of Contracts C-54 and C-55. If the converse be true, no award will be made of Contract C-54&55 and, if awarded, Contracts C-54 and C-55 will be awarded to the lowest and best bidders for them, respectively. Since the Commission reserves the right to reject any or all proposals, it may award either Contract C-54 or Contract C-55 to the lowest and best bidder therefor, and make no other award, or it may make no award of any of the contracts. To qualify for award, a bidder's proposal must comply with the prescribed requirements. The Commission reserves the right to waive technicalities.

DATED March 13, 1953

OHIO TURNPIKE COMMISSION

Bids: March 30, 1953

Additions to Sewage Treatment Plant

Sealed proposals will be received by the Borough of Waynesburg, Greene County, Pennsylvania, until 8:00 o'clock P.M. (Eastern Standard Time) on March 30, 1953, at which time and place the bids will be publicly opened and read aloud, for the Construction of Additions to Primary Sewage Treatment Plant and Miscellaneous Appurtenances. The work will be divided into four contracts and separate proposals will be received for each of the following contracts:

Contract No. 1—General Construction of Additions to Primary Sewage Treatment Plant, including mechanical work.
Contract No. 2—Plumbing for Additions to Primary Sewage Treatment Plant.
Contract No. 3—Heating for Additions to Primary Sewage Treatment Plant.
Contract No. 4—Electrical Work for Additions to Primary Sewage Treatment Plant.

Copies of the Plans, Specifications, Proposal Forms, and other Contract Documents may be examined at the office of William E. Sees, Jr., Consulting Engineer, 222 North Third Street, Harrisburg, Pennsylvania or at the office of the Secretary of the Borough of Waynesburg, Pennsylvania. A complete set of bidding documents, may be obtained at the office of the Engineer upon a deposit of $30.00 for each set of documents. If the documents are returned in good condition within five (5) days after the opening of the bids, $15.00 of the deposit for one set will be refunded. If the documents are not returned within the time stated, the entire amount of the deposit will be forfeited. A certified check equal to five percent (5%) of this amount of the bid must be submitted with the proposal as bid security. Separate checks must be submitted for plans and specifications for each contract.

No bid may be withdrawn for forty-five (45) days after the scheduled time for receipt of bids.

The Borough of Waynesburg reserves the right to waive any informalities in or reject any or all bids.

K. W. Scott, Secretary
Borough of Waynesburg
Greene County, Pennsylvania

Bids: March 31, 1953

Clearing and Grubbing Pepacton Reservoir

CONTRACT 416

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Tuesday, March 31, 1953, for Contract 416, for clearing and grubbing the westerly half of the Pepacton reservoir, in preparation for the storage of water. The work will comprise the clearing of approximately 3,800 acres, the grubbing of about 700 acres, and required excavation and removal of excrementitious material, all as set forth in the specifications. This portion of the Pepacton reservoir is located in the Towns of Colchester and Andes, Delaware county, New York.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of The City of New York, in the amount of seventy thousand dollars ($70,000.00) for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, requirements as to surety, etc., can be obtained in Room 1316 at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McGAHEN, EDWARD C. MAGUIRE, Commissioners, Board of Water Supply; BETTY COHEN, Acting Secretary.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-3911) will be received at Denver, Colorado, until April 30, 1953, for furnishing four 186-inch butterfly valves including one set of handling equipment for Palisades Project, Idaho. Delivery is desired within 525 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Colorado.

FRED G. AANDAHL, Assistant Secretary for Water and Power Development
Department of the Interior

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3910) will be received at Goleta, California, until April 14, 1953, for furnishing labor and materials for earthwork, steel pipe lines, and structures, Laterals 2 to 9, inclusive, Goleta Distribution System, Cachuma Project, California. Location near Goleta, California. Principal items are: 32,000 cu. yds. excavation and backfill; 102,000 lin. ft. steel pipe lines, 3½-inch to 22-inch od.; 215 cu. yds. concrete; and other work. Completion time 300 days. For particulars, address Bureau of Reclamation, Goleta, California; or Building 53, Denver Federal Center, Denver, Colorado.

FRED G. AANDAHL, Assistant Secretary for Water and Power Development
Department of the Interior

OFFICIAL PROPOSALS

Bids: April 7, 1953

New Jersey Turnpike Authority

Sealed proposals will be received by the New Jersey Turnpike Authority for:
CONTRACTS NO. 101, 101A, 101B, 101C, 101D, 101E, 101F and 101G.

The work to be done under these Contracts comprises the construction of additional parking facilities and incidental construction at various Service Areas along the New Jersey Turnpike.

The principal items of work for Contracts No. 101A, 101B, 101C, 101D, 101E, 101F and 101G includes:

CONTRACT	TOPSOILING SQ. YD.	PAVEMENT SQ. YD.
101A	2,000	13,000
101B	2,500	12,000
101C	5,500	15,000
101D	3,500	5,500
101E	3,000	5,500
101F	2,500	7,500
101G	2,000	7,500

The principal items of work for Contract No. 101 equal the sum of the quantities listed for Contracts No. 101A, 101B, 101C, 101D, 101E, 101F and 101G.

Proposals will be received at the office of the New Jersey Turnpike Authority, Administration Building, New Brunswick, New Jersey, until 11:30 A.M., Eastern Standard Time, on the morning of April 7, 1953 at which time and place proposals will be publicly opened and read.

The receipt and opening of proposals is subject to proper prequalification of the bidder in accordance with the regulations adopted by the New Jersey Turnpike Authority. Bidders must also submit with their proposal a revised financial statement and a statement of plant and equipment.

Contract documents may be seen and may be inspected by prospective bidders during regular office hours, after March 19, 1953 at the office of the New Jersey Turnpike Authority, Administration Building, New Brunswick, New Jersey and at the office of the Consulting Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, New York.

Contract documents will be furnished for $5.00 for each set, upon application to the Authority. The payment will not be refunded and contract documents are not required to be returned.

Proposals must be made upon the standard proposal forms in the manner designated in the Standard Specifications, for Construction of the New Jersey Turnpike, and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and the number of the Contract on the outside, and must be accompanied by a certified check drawn to the order of the New Jersey Turnpike Authority and a proposal bond, each for not less than five (5) per cent of the highest amount bid for any alternate in the proposal, but not less than $500.00 nor more than $200,000.00 and must be delivered at the place designated above on or before the hour named. Copies of the proposal form to be used for submitting proposals, of the form for the proposal bond, of the form to be used for the financial statement and for the plan and equipment statement to be submitted with the proposal and of the special addressed envelopes are furnished in detached form with the contract documents.

Where proposals are submitted for more than one Contract, one check and one bond based on the total prices bid for the largest amount of work included in any combination of proposals, will be sufficient.

The Contract will be awarded or the proposals rejected within fifteen (15) days from the date of opening proposals. The right is reserved to reject any or all proposals or to accept that proposal which, in its sole judgment, the Authority deems to be in its best interests.

THE NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast
March 19, 1953 Chairman

OFFICIAL PROPOSALS

Bids: April 8, 1953

NOTICE TO BIDDERS

Contracts C-56, C-57 and C-56&57

Sealed proposals will be received by the Ohio Turnpike Commission for the performance of Contracts C-56, C-57 and C-56&57, which last contract is a combination of Contract C-56 and Contract C-57 in one single contract.

The work covered by Contract C-56 consists generally of the construction of grading, drainage, structures, and paving of approximately 4.4 miles in Construction Section 56 of Ohio Turnpike Project No. 1, beginning at a point about 2,000 feet East of the Shilling-Ely Road at Turnpike Centerline Station 49+10 in Fulton County, and extending eastwardly to a point about 1,100 feet East of the Spies-Handy Corners Road at Turnpike Centerline Station 281+57.53 in Fulton County, and the construction of engineer's office buildings and facilities on or near the site of the work.

The work covered by Contract C-57 consists generally of the construction of grading, drainage, structures, and paving of approximately 3.8 miles in Construction Section 57 of Ohio Turnpike Project No. 1, beginning at a point 800 feet East of the Alvordton Road at Turnpike Centerline Station 1031+70 in Williams County, and extending eastwardly to a point about 2,000 feet East of the Shilling-Ely Road at Turnpike Centerline Station 49+10 in Fulton County, and the construction of engineer's office buildings and facilities on or near the site of the work.

The work covered by Contract C-56&57 is the construction as above generally described for both Contract C-56 and Contract C-57.

In Construction Section 56, the principal structures to be built are one reinforced concrete culvert and six steel beam bridges of from three to five spans each, supported on reinforced concrete abutments and bents. The abutments of all of these bridges are to be on steel piles. The piers of four of these bridges are to be on spread footings. The piers of one bridge are to be on steel piles and the piers of the other bridge on cast-in-place reinforced concrete piles.

In Construction Section 57, the principal structures to be built are four reinforced concrete culverts and two single and two twin steel beam bridges of from three to five spans each, supported on reinforced concrete abutments and bents. The abutments of all of these bridges are to be on steel piles. The piers for all bridges are on spread footings, except the piers for structure 57-2 over Shilling-Ely Road, which are on piles.

Approximate quantities of the major items of construction for Contracts C-56 and C-57 are as follows:

		C-56	C-57
Roadway Excavation	cu. yds.	92,000	230,400
Borrow	cu. yds.	879,000	988,500
Structural Concrete	cu. yds.	4,082	4,696
Reinforcing Steel	lbs.	535,645	575,591
Fabricated Structural Steel	lbs.	1,695,629	714,879
10" Reinforced Concrete Pavement	sq. yds.	122,565	105,513

Approximate quantities of the major items of construction for Contract C-56&57 are the sum of each of the above-noted quantities for Contracts C-56 and C-57.

Copies of the Plans and General Specifications for said contracts will be available on or about March 18, 1953, and thereafter (and in any event on and after March 20, 1953) for public inspection or purchase at the office of the Chief Engineer, Ohio Turnpike Commission, 361 East Broad Street, Columbus 15, Ohio. These documents may be purchased from said Chief Engineer for the following sums, per set, which sums are non-returnable:

General Specifications for
Ohio Turnpike Project No. 1.....$ 5.00
Plans, (also soil profiles and boring logs) per set..... 15.00
Cross Sections, per set..... 25.00

Forms or copies of all remaining contract documents, including Proposals for each of Contracts C-56&57, C-56 and C-57; of the Affidavit which must accompany any such Proposal; of this Notice to Bidders; of the Special Provisions applying to said Contracts; of the Contracts to be entered into with the (or each) successful bidder; and of the Contract Bond to be furnished with such Contract will be furnished upon request and without charge to any interested person at the aforesaid Chief Engineer's office on and after March 24, 1953. One set (or, if required, a reasonable additional number) of said documents will be furnished without charge to each purchaser of either of the aforesaid sets of plans.

All proposals must be on the form prescribed by the Commission and must comply with the terms and conditions set forth in the Contract Documents.

Each proposal must be accompanied by a certified check on a solvent bank, payable to the order of the Ohio Turnpike Commission, in an amount not less than 5% of the total amount bid in such proposal. If the bidder bids on Contract C-56&57 and also on either or both of Contracts C-56 and C-57, one certified check will suffice, if in an amount not less than 5% of the total amount bid by him on Contract C-56&57. If a bidder bids on both of Contracts C-56 and C-57, but not on Contract C-56&57, he shall submit separate certified checks with each bid. The Commission may at any time cash any such check. Each such check, or the proceeds thereof, will be held by the Commission as a guaranty that, if any proposal guaranteed thereby is accepted, a contract will be entered into and the performance of the proposal secured. Each such check, or the proceeds thereof, will be returned or forfeited as provided in paragraphs G-3.03 and G-3.06 of the aforesaid General Specifications; provided that if there be a forfeiture, it shall be of an amount equal to 5% of the total amount bid in the proposal with respect to which the forfeiture occurs, and any excess thereover will be returned to the bidder.

All bids must be received at or before 10:00 A.M., Eastern Standard Time, April 8, 1953, in the offices of the Ohio Turnpike Commission, 361 East Broad Street, Columbus 15, Ohio.

At said hour, the bid box will be removed to the Nell House Hotel, 41 South High Street, Columbus, Ohio where all proposals will be publicly opened and read.

If the bid of the lowest and best bidder for Contract C-56&57 is lower and better than the bids, taken together, of the lowest and best bidders for Contracts C-56 and C-57, respectively, Contract C-56&57 will be awarded (if any award be made) to said lowest and best bidder for it, and no award will be made of Contracts C-56 and C-57. If the converse be true, no award will be made of Contract C-56&57 and, if awarded, Contracts C-56 and C-57 will be awarded to the lowest and best bidders for them, respectively; or, since the Commission reserves the right to reject any or all proposals, it may award either Contract C-56 or Contract C-57 to the lowest and best bidder therefor, and make no other award, or it may make no award of any of the contracts. To qualify for award, a bidder's proposal must comply with the prescribed requirements. The Commission reserves the right to waive technicalities.

DATED March 12, 1953
OHIO TURNPIKE COMMISSION

Read the Official Proposal Columns of
ENGINEERING NEWS-RECORD
This Week and Every Week

SEARCHLIGHT SECTION

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OFFICIAL PROPOSAL

RATE: The rate for Official Proposal Advertising is $1.50 per line (or fraction) per insertion.

COPY RECEIVED: up to Friday for issue out following Thursday subject to space open for last minute ads.

SEND COPY: to Official Proposal Division, Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

OFFICIAL PROPOSALS

Bids: April 1, 1953

Installation of Diesel Engine Generators

INVITATION TO BID

Sealed bids addressed to the Public Works Commissioner of the State of Connecticut for

ITEM #3 INSTALLATION OF DIESEL ENGINE GENERATORS
SOUTHBURY TRAINING SCHOOL
SOUTHBURY, CONN.
PROJECT—B/A-B-104
Dwgs. & Specs. ready—March 16, 1953
Bid Opening—April 1, 1953
Deposit—None

will be received in Room 491, State Office Building, Hartford, Connecticut, until 2:30 P.M., E.S.T. on the dates shown above with each Item, and thereafter publicly opened and read aloud in Room 214, State Office Building, Hartford, Connecticut. Drawings and Specifications may be obtained in Room 469, State Office Building, Hartford, Connecticut. The Performance and Payment Bonds to be furnished by the bidder awarded the contract shall be in amount not less than 100% of the contract price. The Public Works Commissioner reserves the right to waive technical defects or to reject any and all bids. As Security, each bid must be accompanied by a CERTIFIED CHECK or a CASHIER'S CHECK drawn upon either a STATE BANK AND TRUST COMPANY or a NATIONAL BANKING ASSOCIATION located in this State, to the order of the Treasurer of the State of Connecticut, or the bid may be accompanied by a BID BOND in the form required by the Public Works Commissioner and having as surety thereto such Surety Company or Companies as are acceptable to and approved by the Public Works Commissioner, and as are authorized to do business in this State, for an amount not less than 5 per centum of the bid.

NOTE: Prospective Bidders when visiting the site of the work are to report to the Administration Office.

THE APPARENT LOW BIDDER SHALL FILE WITH THE PUBLIC WORKS DEPARTMENT WITHIN THREE (3) DAYS AFTER THE DATE OF BID OPENING A COMPLETE LIST OF THE NAMES AND ADDRESSES OF COMPETENT AS WELL AS RESPONSIBLE AND QUALIFIED SUBCONTRACTORS WHO ARE ACTUALLY TO PERFORM MAJOR SUBDIVISIONS OF THE WORK.

RALPH G. MACY — COMMISSIONER, PUBLIC WORKS DEPARTMENT, STATE OF CONNECTICUT.

ADV. #80.

Bids: April 14, 1953

Refrigerating Equipment

THE PORT OF NEW YORK AUTHORITY
PORT AUTHORITY BUILDING
CONTRACT EXD-140.001

Sealed proposals for furnishing and installing refrigerating equipment for air-conditioning systems in the Port Authority Building will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y. until 2:30 P.M. on the afternoon of Tuesday, April 14, 1953, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1110, and copies will be furnished upon deposit of $25.00 per set. The deposit shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than forty days after the opening of proposals. The deposit will be forfeited if the documents are not so returned within forty days.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, March 26, 1953

Bids: April 9, 1953

Display Cases, Mirrors and Shelving for Passenger Terminal Building at Newark Airport

THE PORT OF NEW YORK AUTHORITY
PROPOSAL NO. 60

Sealed proposals for furnishing all labor, material and equipment necessary for the installation of display cases, mirrors and shelving at Passenger Terminal Building, Newark Airport, Newark, N. J., will be received at the office of the Department of Purchase & Administrative Services, The Port of New York Authority, Room 900, 111-8th Ave., New York 11, until 11:00 A.M. (EST) Thursday, April 9, 1953, at which time and place said proposals will be publicly opened and read.

Contract documents may be seen at the office of the Department of Purchase & Administrative Services, The Port of New York Authority, Room 900, 111-8th Ave., New York 11, and copies will be furnished upon deposit of $10.00 per set. Deposit must be delivered to Treasury Department, Room 1001, where a receipt in duplicate will be issued. The deposit will be refunded if the documents are returned in good condition, not later than thirty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

Bids: April 21, 1953

WIDENING TOLL BOOTH PLAZA GEORGE WASHINGTON BRIDGE

THE PORT OF NEW YORK AUTHORITY
CONTRACT GWB-140.004

Sealed proposals for widening the toll booth plaza for the George Washington Bridge, in New Jersey, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, April 21, 1953, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1110, and copies will be furnished upon deposit of $25.00 per set. The deposit shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than forty days after the opening of proposals. The deposit will be forfeited if the documents are not so returned within forty days.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, March 26, 1953.

Bids: April 14, 1953

Contracts Nos. 24, 24A, 24B, 24C

WEST VIRGINIA TURNPIKE COMMISSION
ADVERTISEMENT FOR PROPOSALS

Sealed proposals will be received by the West Virginia Turnpike Commission for:

The work to be done under Contract 24 consists in performing the required grading and drainage for more than 14 miles of the West Virginia Turnpike including the substructures for bridges and box culverts. This work is located between Mile 36 north of the Beckley Interchange, Raleigh County, and beyond Mile 50 near Mossey, Fayette County, West Virginia, and is in connection with the construction of the West Virginia Turnpike in the State of West Virginia.

Proposals will be received at the office of the West Virginia Turnpike Commission, 1340 Wilson Street, Charleston 5, West Virginia until 9:00 A.M. Eastern Standard Time, and thereafter at the House of Delegates Chamber, State Capitol, Charleston, West Virginia until 10:00 A.M. Eastern Standard Time, on April 14, 1953, at which time and place said proposals will be publicly opened and read.

The principal items of work include:

	Approximate Quantity		
	24A	24B	24C
Clearing and Grubbing	72 acres	72 acres	75 acres
Excavation (all types)	930,000 c.y.	1,110,000 c.y.	1,330,000 c.y.
Concrete	1,625 c.y.	4,000 c.y.	2,900 c.y.
Reinforcing Steel	105,000 Lbs.	300,000 Lbs.	205,000 Lbs.
Culvert Pipes and Underdrains	15,000 L.F.	13,600 L.F.	18,200 L.F.

WEST VIRGINIA TURNPIKE COMMISSION
D. H. Morton, Chairman
March 18, 1953

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CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

FLA. REGISTERED structural engineer to share offices with architectural designer. Rent in exchange for small services. Write direct to Harris, 1640 N.W. 19th Ave., Miami 35, Fla. Phone 2-11-38.

WANTED: ENGINEERS experienced in waste works. Sewers, Paving, Building for design and supervision of construction. Advise education, experience, salary requirements and when available. P-7314, Engineering News-Record.

BRIDGE DESIGNERS Wanted. Permanent location—38 hour week. Reply stating experience, education, age. Wyoming Highway Department, Cheyenne, Wyoming.

CONSTRUCTION SUPERINTENDENT by established California firm for dam and powerhouse project in far West. Must be thoroughly experienced and qualified to take full charge of field operations. Please give complete experience record, references, education, age, date available and Salary expected. P-7302, Engineering News-Record.

BUILDING ESTIMATOR, C.E. deg., permanent position in N.H. Salary commensurate with ability and experience. Advise qualifications, education, past employment and salary expected. Write P-7317, Engineering News-Record.

POSITIONS WANTED

ARCHITECTURAL - STRUCTURAL Engineer experienced in industrial and commercial design, field-supervision and estimating desires position with Architect-Engineers or Constructors. PW-7209, Engineering News-Record.

ELECTRICAL DRAFTSMAN 10 years experience estimating, purchasing, design and supervision of Industrial and Commercial work. Desires field or office position with contractor or consulting firm. PW-7177, Engineering News-Record.

CARPENTER FOREMAN or Supt. on smaller jobs. In the building line 28 years. Experienced from concrete to finished job. Read plans perfectly. Can handle men. Limited knowledge of engineering. Available immediately. N.Y.C. vicinity. PW-7228, Engineering News-Record.

GENERAL CONSTRUCTION-Superintendent. 30 years experience in all phases of construction Inc. Resid. State and foreign. Desires connection with medium or small co. Preference West, Pa. or E. Ohio. May relocate South if necessary. Excellent references. PW-7226, Engineering News-Record.

SUPERINTENDENT, 15 years Heavy Construction experience Bridges, Tunnel, Sewers, Shoring Foundations, Concrete, structural steel. Highest references. Available April 15th. West Coast preferred. PW-7069, Engineering News-Record.

REGISTERED STRUCTURAL Engineer, architectural background, 12 years design experience for all types of structures including 2 years overseas air base design. Desires responsible position. Single, free to travel. PW-7299, Engineering News-Record.

ENGINEER: 39, Administrative experience; design of unusual structures; Project supervision; graduate, licensed, high professional standards, tactful, adaptable; desires responsible position. PW-7325, Engineering News-Record.

GENERAL SUPERINTENDENT & Estimator long experience, all types of asphalt paving. Only permanent position considered. PW-7304, Engineering News-Record.

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General Superintendent or Project Manager—long successful record in direct charge of major construction projects. Will accept either domestic or foreign assignment. Knowledge of French, German & Spanish. Experience covers Waterfront, Building, Highway, & Bridge Construction, Sewage and Water Treatment Plants, Power Plants.

PW-6703, Engineering News-Record
330 West 42nd St., New York 36, N. Y.

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411 S. 5th Ave. Lake Worth, Florida

POSITIONS WANTED

GRADUATE STRUCTURAL Engineer, Registered P.E., age 32, seven years design experience on commercial, industrial, and institutional Buildings, sewage-treatment plants, grandstands, schools, etc., including some field construction experience, desires position with greater responsibility and opportunity such as Project-Engineer for design and plans or as Plant-Construction Engineer for any reputable industrial firm or subdivision. Would also be glad to consider professional association with a progressive engineering or architectural firm in return for responsible performance. Presently engaged in limited professional design-practice in addition to heading structural-design group of a small A-E firm. Willing to relocate anywhere in U. S. for right job. Minimum annual salary $7600. Resume furnished. PW-7337, Engineering News-Record.

REGISTERED ARCHITECT—Experienced on power, water, industrial & Municipal projects. Also general practice. University graduate—45—Married—registered several states. Wish permanent location smaller city. PW-7273, Engineering News-Record.

ARCHITECTURAL DRAFTSMAN, structural eng'r., industrial & commercial bldgs., Prefer central States. PW-7255, Engineering News-Record.

DESIGN ENGINEERS: experienced plant layout, piping, processing equipment, mechanical installations. Available after May 1st. Salary $10,000.00, age 49, can relocate. Address PW-6995, Engineering News-Record.

ENGINEERING MANAGER background in complete Plant Design, preparation and analysis of budgets for industrial installations. Bulk of experience in detergents, Pharmaceuticals and organic chemicals. PW-6457, Engineering News-Record.

SELLING OPPORTUNITY WANTED

SALES ENGINEER, experienced and with professional licenses, in Washington, D. C., desires a line of construction machinery or building materials. Present temporary position with a Defense Agency expires April 1st. Can design and erect. RA-7272, Engineering News-Record.

WORK WANTED

Licensed Surveyor with party available for preliminary and location surveys on Highways and Railroads. WW-7147, Engineering News-Record.

BUSINESS OPPORTUNITY

Experienced Engineers, Designers or Contractors interested in associating actively and financially conducting business of well established Architects-Engineers Design Office located New York—Floating Equipment—Port Developments—Power Plants, etc. Reply with full details, experience, references, etc. BO-7041, Engineering News-Record.

WANTED

ANYTHING within reason that is wanted in the field served by Engineering News-Record can be quickly located through bringing it to the attention of thousands of men whose interest is assured because this is the business paper they read.

New "SEARCHLIGHT" Advertisements
received by March 30th will appear in the April 9th issue subject to limitations of space available.

Classified Advertising Division
ENGINEERING NEWS-RECORD
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All makes and models expertly repaired in modern shop. All work guaranteed
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for sale or rent
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8 N. EDMONDSON AVE. INDIANAPOLIS 19, IND.

STRUCTURAL ENGINEERS
SENIOR ARCHITECTURAL DRAFTSMEN
MECHANICAL ENGINEERS
SANITARY ENGINEERS

We have several openings for men experienced in general building design.

Good working conditions—Overtime after 40 hours per week.

Give complete details of experience in first letter.

BELLMAN, GILLETT & RICHARDS
Architects and Engineers
518 Jefferson Avenue Toledo, 4, Ohio

Unusual Opportunity For Sales Manager

Rapidly growing trailer manufacturer (9600 employees) because of expanding sales requires Sales Manager for Platforms, Carryalls, Dumps and Chassis.

Requirements are capable, aggressive merchandiser with sales ability. Also able to formulate plans and policies and administer. Maximum age 45.

Must have strong experience with Platforms, Carryalls, Dumps and Chassis.

This is exceptional opportunity for right man. Salary commensurate with position. If qualified, please send detailed letter in strictest confidence to

P-7165 Engineering News-Record
330 W. 42 ST. NEW YORK 36, N. Y.

COST ENGINEER
EXPERIENCED
C.E. GRADUATE

Must be capable of estimating foundations and heavy construction. Analyze and prepare monthly project cost statements, progress schedules and material lists.

Excellent salary.

State qualifications and references in first letter.

P-7193, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

ENGINEERS

Structural, mechanical, and electrical for work on hydro-electric power developments. Write giving full experience record and qualifications.

HARZA ENGINEERING COMPANY
400 West Madison Street Chicago, Illinois

DRAFTSMAN

Want top rate detailer and checker on welded truss and rigid frame steel construction. Permanent position and top rate salary to experienced man.

KILROY STRUCTURAL STEEL CO.
8500 Union Ave. Cleveland 5, Ohio

CONSTRUCTION ESTIMATOR and COST CONTROL MAN

Must be thoroughly experienced in quantity take-offs and estimating and have successful performance record in competitive bidding. Cost control experience required. Background in Power Plant work, Process Piping and General Industrial Construction absolutely essential. We are looking for a man who has been successful as a Chief Estimator and is seeking a permanent staff position. State education, experience, and salary requirements. All applications will be acknowledged. Location Philadelphia.

P-7288, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

ENGINEERS WANTED

The Tennessee Valley Authority wants Civil, Structural, Office Engineers, and Estimators. The work is design and construction of large steam-electric and hydro-electric projects and transmission systems. Salaries start at $4450 and $5325 for 40-hour week. All jobs carry automatic within-grade increases for satisfactory service, liberal vacation leave, sick leave, and retirement benefits. Design and estimating jobs are in Knoxville and Chattanooga, Tennessee. Field and office engineering jobs are at construction sites in the Tennessee Valley area and at Paducah, Kentucky.

Write to

TENNESSEE VALLEY AUTHORITY,
DIVISION OF PERSONNEL,
KNOXVILLE, TENNESSEE

OPPORTUNITY
CONSTRUCTION SUPERINTENDENT WANTED

Experienced, aggressive, organizer, capable of taking complete charge of multi-million dollar building or bridge project. Must prove successful, profitable accomplishment record. Job located in Midwest. Salary and bonus. State age, experience, salary, and references in letter.

P-7296, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

WANTED

An Alert Mechanical Engineer with Some Knowledge of Electrical Engineering . . . Must Be a Good Calculator . . .

PHILIPS & DAVIES, INC.
KENTON, OHIO

WANT EXPERIENCED, Structural Steel, Miscellaneous, & Ornamental Iron DETAILERS—CHECKERS

Excellent working conditions, highest salary. Permanent.

CAPITOL STEEL & IRON COMPANY
1726 S. Agnew Oklahoma City 8, Okla.

STRUCTURAL ENGINEER

With 10 to 15 Years Experience in Reinforced Concrete and Structural Steel Design for Electric Utility Work, *Write to*

Structural Engineer
PENNSYLVANIA POWER & LIGHT CO.
Allentown, Pa.

WANTED
SUPERINTENDENT

California firm seeks experienced construction superintendent for industrial and refinery projects with specialization in industrial, process and power piping; millwrighting and machinery installation work. Give full experience record, education, age, availability and salary expected.

P-7013, Engineering News-Record
1111 Wilshire Blvd., Los Angeles 17, Calif.

DRAFTSMEN
STRUCTURAL STEEL DETAILERS

and checkers. Long range work. Top rates for top experienced men. Send resume (in confidence) of work history, detailed experience, etc.

CHARLES COHN & SON
25-20 43rd Ave., Long Island City, N. Y.
TEL: STillwell 4-1686

BRIDGE DESIGNERS

Private Consultants require experienced men for work this area. Send experience resume to

P. O. Box 752 Providence, R. I.

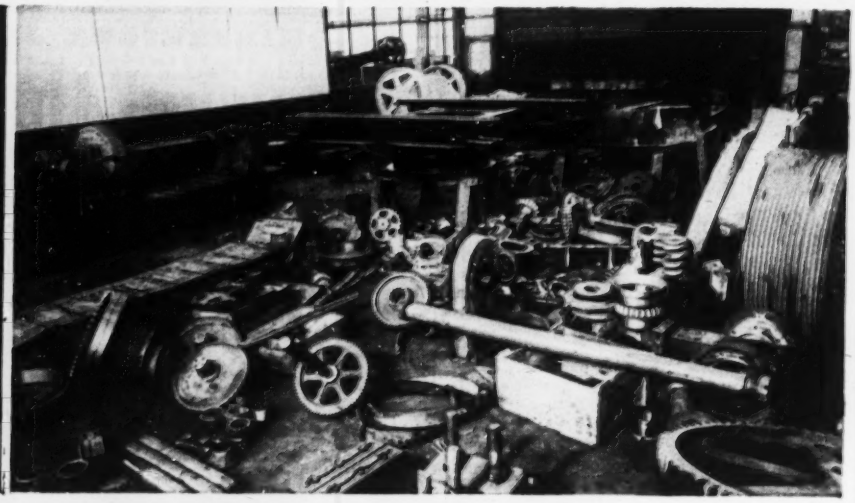
PROJECT MANAGER

Must be thoroughly experienced in steel and concrete construction, engineering background advantageous. Splendid opportunity. Commensurate salary. Job duration about one year. Pittsburgh, Pennsylvania area. Advise qualifications and availability.

P-7023, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

BEFORE

L. B. SMITH starts rebuilding used equipment, it is necessary to completely dismantle it as was the case illustrated here. Skilled workers, manning the latest and most modern machines, using standard bushings, standard shafts, standard factory parts, perform our rebuilding jobs with doctor-like thoroughness!

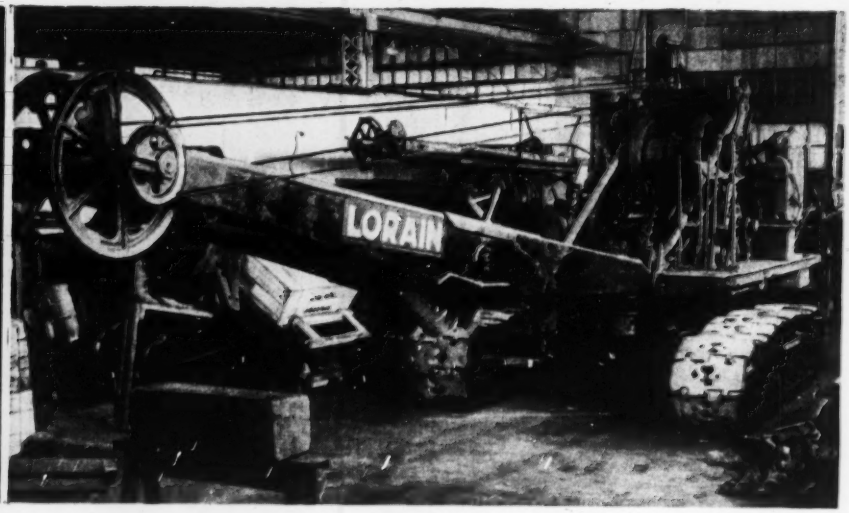


THE REBUILDING JOB WE DID HERE...

can be done on your equipment, too!!!

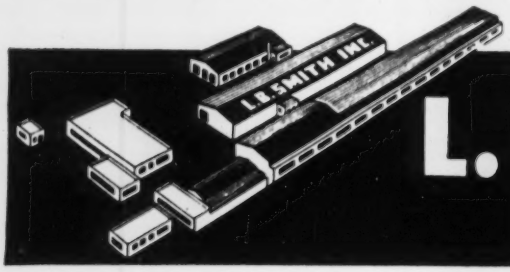
AFTER

L. B. SMITH rebuilds equipment, it is ready for many years of further use. Wherever possible, new design is incorporated into the rebuilt machine, increasing the productive capacity. And, since under and oversizing shafts, bearings, etc. is frowned upon, no trouble is experienced in future maintenance.



Your Equipment???

Have you equipment we can rebuild?
You are invited to use our facilities — the world's largest equipment rebuilding facilities . . . where rebuilding is a business — with over 25 years of experience on all types of construction equipment — where trained mechanics with precision tools — can build back into your equipment many years of additional and efficient usefulness — using the same thoroughness employed in rebuilding our own used equipment. Write today



L. B. SMITH INC.

CAMP HILL, SUBURB OF HARRISBURG, PA.

L. B. SMITH INC.

New and Used Equipment News

Prepared Monthly by Ed Woolford at Camp Hill, Pa.

VOL. 1 NO. 11

AIR COMPRESSORS

Gardner-Denver 500 cu. ft. diesel, new condition.
Gardner-Denver 500 cu. ft. diesel, good operating condition.
Worthington two-stage, water-cooled, vertical 250#, 60 CFM, new condition.
Paving breakers, jackhammers, wagon drills, tie tampers.

QUARRY EQUIPMENT & BINS

2036 Cedarapids AAA primary unit on rubber, diesel power. Rebuilt.
1036/2418 Cedarapids Jr. Tandem unit on rubber.
Cedarapids Rock-It plant w/2025 jaw, 3033 hammermill. New.
1236 Cedarapids Model 6C plant. New.
4033 Cedarapids Model 6C plant. New.
2020 Cedarapids double impeller. New condition.
4024 Cedarapids roll. Rebuilt.
3018 Cedarapids roll. Rebuilt.
1236 Cedarapids twin jaw crusher. New.
1036 Cedarapids jaw. Rebuilt.
10x7 Allis Chalmers lake type jaw crusher. Rebuilt.
B-3 Jeffrey swing hammer pulverizer. Rebuilt.
4' x 6' Kennedy Van Saun single deck screen.
3' x 6' Kennedy Van Saun triple deck screen.
60" dia. x 14' long Traylor revolving screen. Rebuilt.
36" Wemco single pitch sand screw. New condition.
15 cu. yd. Cedarapids sand drag. New.
16" x 90' bucket elevator.
60-ton, 2-compartment, 8' x 18' storage bin w/clam gates.
100-ton, 2 compartment, 13'x23' storage bin.
Special bins to your specifications.
Conveyors—18"—24"—30"—36". Also belt.
24" Dia. x 36" face magnetic pulley.

TRUCKS—TRAILERS

27FD Euclid rear dumps.
1½-ton Ford with any body.
2000-gallon tanks on semi-trailer mounting.
New and rebuilt dump bodies.

GENERATORS & LIGHT PLANTS

1½ KW to 125 KW, alternating and direct current gasoline and diesel powered.

SHOVELS—CRANES

Lorain L-82, 2-yd. diesel.
Lorain 77, 1½-yd. diesel.
Lorain 75B, 1¼-yd. diesel.
Lorain L-50-I, 1-yd. diesel.
Lorain 40 truck crane on Mack 3-axle truck.
Buckeye ¾-yd. diesel.
Unit 514, ½-yd. gasoline crawler shovel, rebuilt.
Lorain 30A, ½-yd. gas combination.

SHOVEL & CRANE ATTACHMENTS

Lorain L-41 Chain Crowd Shovel Attachment. Rebuilt.
Lorain 40 Hi-Lift shovel attachment.
P&H 203 shovel attachment.
Chain crowd Lorain 30A shovel attachment.
Bucyrus-Erie 1½-yd. rock bucket.
McCaffrey Model 648 for 1¼ to 2-yd. crane.
McCaffrey Model 636 for ¾-yd. to 1-yd. crane.
Lorain 77 crane boom, 45'.

BACKHOE BUCKETS & ATTACHMENTS

Lorain 30 hoe attachment complete.
¾-yd. Lorain, 40, LBS #8105, 44" cutting width.
¾-yd. Amsco 40" cutting width, LBS #8101.

CLAM—DRAG—SCRAPER BUCKETS

LIFTING MAGNETS

1—45" Ohio lifting magnet, rebuilt.

SHOVEL DIPPERS

Lorain 41, ¾-yd. LBS #8600, rebuilt.
New Lima 1-yd. Amsco, LBS #2295.
Bucyrus-Erie 1¼-yd. gas air, LBS #3782, fair.
Lorain 75B, 1½-yd. manganese bucket, LBS #8538.
Lorain 75B, 1¼-yd. extended lip, 1¾-yd. LBS #2260.
Pettibone-Mulliken 2-yd. Lorain 82 or 820, manganese, LBS #5361.
Pettibone-Mulliken 2-yd. for 3500 Manitowoc LBS #5763.
Esco 2½-yd. cast weld dipper with bail & teeth.

CONCRETE EQUIPMENT

Blaw-Knox gas-electric finisher, 10½'-12½', rebuilt.
Koehring 10'-12' finishers, rebuilt.
Cleveland formgrader, new 1944 rebuilt.
Corr formgrader, new 1944, rebuilt.

TRUCK MIXERS

3-yd. Smith high discharge mixer on International chassis.

TRACTORS

TD-24 International with Bucyrus-Erie angleblade.
TD9 International diesel with 1 yd. Loadover.
Model CR Tournapull w/16-yd. Model E16 Tournarocker, rebuilt.

WELL DRILLS & TOOLS

Sanderson-Cyclone #42 well drill, new.
Sanderson-Cyclone #44 well drill, new.
Bits—Stems—Bailers—Sockets—Etc.

Barber-Greene 44C Trenching machine 18" to 24" cutting width, 7' depth.

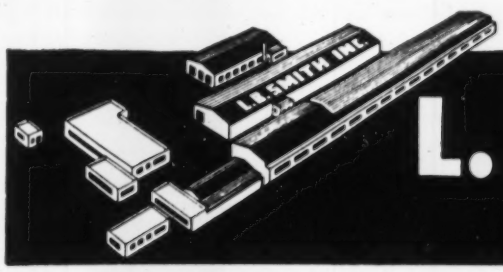
PUMPS

New Layne Bowler type 18 deep well pump with right angle gear drive, 3000 GPM at 126' TDH.
Used and rebuilt pumps, all sizes, gasoline, electric or diesel.

GASOLINE AND DIESEL ENGINES

Caterpillar D-13000, rebuilt.
Murphy ME-6, & ME-46, rebuilt.
Caterpillar D8800.

Phone **HARRISBURG, PA. 7-3431**



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CAMP HILL, SUBURB OF HARRISBURG, PA.

DIESEL POWER

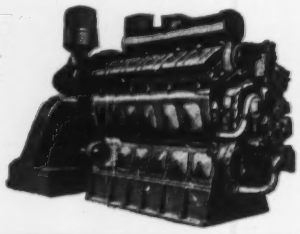
IMMEDIATE SHIPMENT

• PURCHASE OR RENTAL

UNIT CAPACITIES—10 TO 2475 KVA

A.C.—50 AND 60 CYCLES

• ALSO D.C. UNITS



A PARTIAL LISTING OF OUR INVENTORY

KW	Make	Model	HP	RPM	KW	Make	Model	HP	RPM
1980	Nordberg	T8–217	2800	225	320	Enterprise	DSG–6	560	450
1500	Fairbanks Morse	33E16	2000	300	300	General Motors	8–268A	450	1200
1136	Fairbanks Morse	38D	1600	720	250	Fairbanks Morse	37–E	375	360
1100	General Motors	16–278A	1600	720	200	General Motors	8–268A	350	900
750	General Motors	12–567	1080	720	150	Worthington	CC–4	225	450
500	Baldwin	VO–8	750	514	150	Buckeye	80	240	600
500	General Motors	8–278A	750	720	100	Worthington	BB–5	150	600
500	General Motors	8–567	720	720	100	General Motors	3–268A	150	1200
400	Ingersoll-Rand	8–8	600	720	60	General Motors	6–71	90	1200
350	Baldwin	VO–6	510	450	30	Internat'l Harvester	UD–14	45	1200

A. G. SCHOONMAKER COMPANY, INC.

ENGINE DIVISION, 50 CHURCH ST., NEW YORK 7, N. Y.

FOR SALE

EXCELLENT PHYSICAL & OPERATING CONDITION

23 Austin-Western Automatic Air-Operated Dump Cars 20 Cubic Yards Capacity, AB Air Brakes, Lift Door Std. Gauge.

13 Austin-Western Automatic Air-Operated Dump Cars 20 Cubic Yards Capacity, AB Air Brakes, Lift Door with unloading aprons, Std. Gauge.

2 Jordan Standard Spreader Cars, 50 ton Capacity, AB Air Brakes, Enclosed Operator's Cab, Std. Gauge.

MARSHALL RAILWAY EQUIPMENT CORP.

50 Church St. N. Y. 7, N. Y.

Cortlandt 7-8090

COMPLETE TUNNEL EQUIPMENT

For Drilling

3—1035 c.f.m. Ingersoll-Rand Stationary Compressors with 200 H.P. Electric Motors, Air Receivers, Aftercoolers and made-up piping.
10—Ingersoll-Rand No. 229 DJB Drill Booms
16—Ingersoll-Rand DA35, wet type Drifters

For Mucking

3—#40 Eimco Rockershovels
4—#75 Conway Muckers

For Hauling
(all 36" gauge)

6—Greensburg, 11 ton, Electric Locomotives
3—Whitcomb, 10 ton, Electric Locomotives
3—40 K.W. Battery Charging Units
2—20 K.W. Battery Charging Units
1—Plymouth, 10 ton, Gas Locomotive
8—5 yard Side Dump Muck Cars
6—2 yard Koppel Dump Cars
30—Flat Cars

For Ventilation

2—7300 c.f.m. Roots-Connersville Blowers
1—Joy Axivane Fan, series 1000
12,000'—24" Vent Pipe, Lock Joint, 14 gauge

For Concreting

2—¾ yard Hackley Pneumatic Concrete Placers
1—Model 190 Rex Pumpcrete Machine
Special Placing Equipment for Arch and Invert

Miscellaneous

25—1½" to 4" Electric Pumps
2—60 K.W. Diesel Generator Sets

Subject to prior sale

FRAZIER-DAVIS CONSTRUCTION COMPANY

1319 Macklind Avenue, St. Louis, Mo. **STerling1950**

Box 153—Grahamsville, New York **Grahamsville 2861**

D-E-R-R-I-C-K

1—Wiley 30 ton Steel Stiff-Leg derrick. 60' Boom. Like new. Complete with three drum electric Hoist, all ropes, hook, sheaves, fall block, etc. Can be inspected in operation.

NATIONAL EQUIPMENT CO.

Bloomington, Indiana

TRUCK CRANES FOR SALE OR RENT

1—25-ton Bay City Model 190
1—35-ton P&H Model 555

Both new 1952

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Girard Trust Company Bldg. Philadelphia 2, Pa.

LOCOMOTIVES

3—G.E. 100 Ton Diesels
1—Brookville 14 Ton Diesel Std. Ga.
1—Brookville 10T-30" Ga. Diesel—Like New.
2—Plymouth 8 Ton Gas. Std. Ga.
1—Vulcan 14 Ton—30" Ga., Diesel.
3—Whitcomb—15 Ton—36" Ga.—Diesel.
1—Whitcomb 30 Ton Std. Ga. Diesel.
1—Whitcomb—35 Ton Diesel
1—Plymouth—8 Ton 30" Ga.—Gas

3—HOPPER CARS—50 TON. EXCELLENT. STD. GA.

2—Conway Mod. 75 Muckers. #256 & 305. Bargains.
Southwark 500 Ton Hydraulic Press—High Speed—Like New.

R. H. BOYER

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Phone Sagamore 2-7132

Pile Driving Equipment

Vulcan and McKiernan-Terry
Steam Pile Hammers and Extractors
Pile Driving Accessories
Drop Pile Hammers and Caps
Steel Sheet Piling

CONTRACTORS MACHINERY Co.

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Phone Valentine 4740

STEEL FORMS

FOR SALE

Blaw Knox steel forms for 10-foot circular inside diameter concrete structures. Includes

4—Sets 22 Foot inside barrel forms.
2—Sets Travelers.
2—Sets 22 foot outside barrel forms.

Markham & Brown-Kearney, Crume & Co.

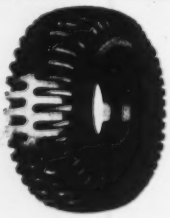
1961 N. Industrial Blvd., Dallas, Tex.
Telephone—RAndolph 3630

ARMY SURPLUS — TRUCK AND CONSTRUCTION TYPE TIRES
NEW—USED AND TAKEOFFS

Suitable For All Types Of Construction Equipment
• Mobile Cranes • Low Bed • Mobile Compressors • Truck • Tractor
Regular Highway and Non-directional on and off the road type tires.

750/20— 8 ply un-used non-directional tires and tubes	$32.50
825/15—12 & 14 ply low bed takeoff tires 85% tread	50.00
1000/15—12 ply excellent perfect used L. B. tires	35.00
900/20—14 ply or better Army combat takeoffs	50.00
1100/20—12 ply non-directional 95% tread takeoffs	60.00
1100/20—12 ply highway 95% tread takeoffs	55.00
1400/24—16 ply new Goodrich highway tread tires	149.50
1400/24—16 ply Goodyear all weather diamond tread takeoffs	85.00
1400/24—20 ply non-directional tread takeoffs—75% tread	99.00

EVERY TIRE GUARANTEED TO BE IN PERFECT CONDITION
Tires Shipped Everywhere—25% With Orders—FOB Everett, Mass.
Inquiries Promptly Answered • We can supply tires and tubes for all types of grader and heavy duty construction equipment.



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Tel EV 9-9485

WOOLRIDGE TERRA COBRAS

Two (2) 15½ Yd. Model T. C.
Cummins Diesel Engines
New November 1948
Price For Both..... $30,000.00

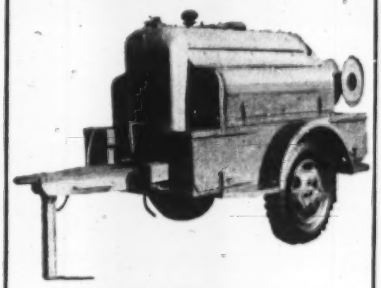
ANDERSON EQUIPMENT COMPANY

Box 1737, Pittsburgh 30, Penna.
Phone: LEhigh 1-6020

Want To Rent
With Option To Purchase
1—34E DUAL DRUM PAVER
Age 3 yrs or less
Williams Construction Co., Inc.
Box 145 Essex 1310 Baltimore 20, Md.

Can't Beat This Compressor for $1900

10 in Stock for Immediate Shipment



105 CFM INGERSOLL RAND PORTABLE

- Oil Engine Driven
- Two Stage
- On (2) Pneumatics
- Electric Starter
- Built in Tool Boxes
- (2) Live Hose Reels

Guaranteed the same as NEW. Inspect them—see them run. Try one for 30 days. Buy or Rental Purchase.

AMERICAN AIR COMPRESSOR CORP.
Dell Ave. & 48th St. North Bergen, N. J.
Union 5-4848

For Rent

SPEEDCRANES

LATE MODELS

Manitowoc Diesel Powered Speedcranes for rent. 25, 40 and 60 ton capacities with booms 100' or more, 20' and 30' jibs. Special price on long rentals.

FORSYTHE EQUIPMENT CO., INC.
37-11 Vernon Blvd. Long Island City, New York
Tel. STillwell 4-1030

FOR RENT

MANITOWOC CRANES

Model 3500—40 to 60 ton cap. 50' to 125' boom—20' or 30' jib Manuel controls — Independent booms Torque converters

McCARRICK BROTHERS INC.
1700 E. Ridge Pike P. O. Box 291
Norristown, Pa. *Phone 8-4231*

FOR RENT

New Model 3500 Speederane, dragline, clamshell and liftcrane, 60-ton capacity.
New Ingersoll Rand 600' Gyro-Flo Air Compresser.
New Lorain Truck Crane, 25 Ton capacity.

FOR SALE OR RENT

Marion 392 and Koehring 803 dragline, clamshell, lift crane and pile driver combinations. McKiernan-Terry 8-5 and 11B-3 Pile Hammers.

Reply to:

Clemens Construction Co.
P. O. Box No. 266, West New York, N. J.

FURNIVAL'S TRADING POST

A TWICE MONTHLY LISTING OF DESIRABLE USED EQUIPMENT

REX MIXER — model 7S, with power loader and water tank, LeRoi gas engine. Mounted on two pneumatic tired wheels. A dependable piece of equipment at a very good price. **$550**

LE TOURNEAU SUPER "C" DOZER — complete with Buda engine and double scraper hook-up. This piece of equipment just came into our yard. It's in excellent condition. You'll find it a very good buy **$14,000**

INGERSOLL RAND PORTABLE COMPRESSOR — model IKA-500 with 500 cu. ft./min. capacity, mounted on four pneumatic tired wheels. Has had good performance record. Traded in on larger model. **$3,000**

INTERNATIONAL TRACTOR — model TD-18 with steel tracks. Powered by an International diesel engine. Complete with BE dozer blade. In very good condition **$9,000**

MIXERMOBILE — model 200 with 35' tower and 10' extension. In excellent condition. Price upon request.

MIXERMOBILE — model 61 on six pneumatics, powered by a heavy duty Ford engine. Barely used demonstrator. Will quote a good price to interested parties.

INGERSOLL RAND PORTABLE COMPRESSOR — same model as above but in newer condition and powered by an International Harvester engine. Used only as a demonstrator, it represents top equipment value **$9,257**

LE TOURNEAU SUPER "C" TOURNAPULL WITH LP SCRAPER. In good condition and at a good price. **$4,500**

LORAIN ½ YD. TRUCK CRANE — powered by Hercules six cylinder gas engine. Has 25' boom; is mounted on ten wheel Thew moto-crane carrier powered by Waukesha gas engine with good 11:00 x20 — 12 ply tires, live boom. You're in business with this one **$13,000**

LA PLANT CHOATE SCRAPER — capacity 14 yd. struck, 17 yd. heaped. Powered by Buda engine. In excellent condition. We'll give you a good price.

SUBJECT TO PRIOR SALE. WRITE, WIRE, CALL AT ONCE

FURNIVAL MACHINERY CO.
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NEW AND REBUILT
STORAGE BATTERY
LOCOMOTIVES
1½ to 10 Ton — 18" to 56" Track Gauge
GREENSBURG MACHINE CO.
Greensburg, Penna.

Locomotive Cranes	Dredges, Hydraulic
Crawler Cranes	Boilers
Gantry Cranes	Generators
41-B, 50-B, 30-B, DE	Slackline
Steam Cranes	Tugs & Boats
Locomotives	Derricks
Railroad Cars	Hoists
Pumpcrete	Bins

STONE THE CRANE MAN
1132 Prudential Bldg. Buffalo 2, N. Y.

FOR SALE

New Wire Rope Blocks

12" Snatch Blocks with Hooks	$13.50
14" Snatch Blocks with Hooks	18.50
16" Safety Snatch Blocks with Shackles	20.00
14" Double Blocks with Shackles	13.00
18" Single 20 Ton with S. Shackle	25.00
18" 3-Sheave 30 Ton with Shackle	50.00
18" 4-Sheave 30 Ton with Shackle	75.00
#32 Drop Forge Hooks, New	2.00

ABERTHAW COMPANY
133 Southampton St. Boston 18, Mass.

STOCK SPECIALS

For Sale or Rent

1—P & H Model 855 Crawler Shovel, 2 yd. capacity, Cat. Diesel power. Reconditioned. Crane boom available.

1—P & H Model 700 Crawler mounted Crane, 1½ yd. capacity. Gas power. Good all-around condition.

1—BAY CITY Model 650, 1¼ yd. crane, dragline, shovel, 60 ft. boom. Powered by Cummins Diesel. Late Model, in excellent condition. Hoe attachment available.

1—Marion Model 342 Crawler mounted Shovel and Crane, 1 yd. capacity diesel engine. Excellent operating condition.

1—Osgood, 1 yd. Crawler Hoe & Crane, 50' boom. Gas Power. Good Condition.

1—Bay City Model 45 Crawler Hoe-Shovel. Gas Power. Late Model. Rebuilt.

1—Bay City Model 45 ¾ yd. Crawler Hoe-Shovel-Crane. Power diesel. Late model in perfect condition.

1—Buckeye Model 70, ¾ yd. Crawler Hoe & Shovel. Late model. Diesel power.

1—Byers, Model 83, ¾ yd. Crawler Hoe or Crane, gasoline power. Rebuilt.

1—Bay City Model 25, ½ yd. Crawler Hoe or Shovel. Late Model. Gas power. Rebuilt.

1—Bay City Tractor Shovel, Hoe or Crane, "Pup" ⅜ yd., ¾ swing. Crawler mounted, gasoline driven.

1—Bay City Model 15A T 40 Cranemobile, ½ yd. 10-ton capacity. Magnet & Generator set available. Good all around condition. Hoe attachment also available.

1—Browning Truck Mounted Crane 10 ton capacity Model "E," powered by Cummins diesel and mounted on 10 wheel Mack chassis. First class condition throughout.

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1—P & H 255A Hoe Attachment.

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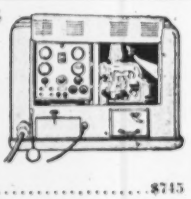

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or something you don't want that readers can supply—or use—*advertise it in the*
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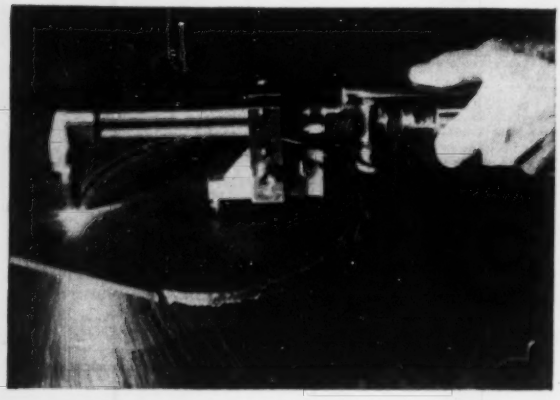
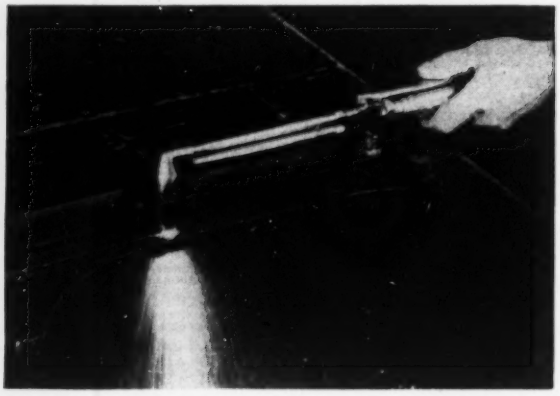


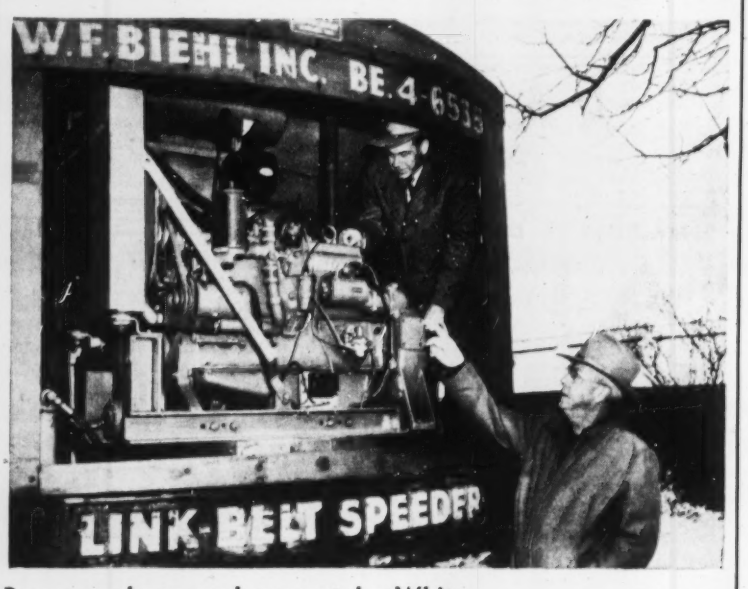


Guides permit accurate metal cutting

A series of precision type cutting guides for gas-flame metal-cutting torches has been designed to provide workmen with low-cost attachments for accurate work. The small circle cutting guide at left, for example, can cut circles of from 1 to 15 in. diameter while a larger one handles circles from 10 to 66 in. diameter. The straight line guide at right can be shifted for perpendicular cuts, or at any angle. Bevel cuts at 45 and 60 deg can be handled also it is said.

Guides can be attached to torches in two or three minutes and all clamping is hand tight. Built-in positioning fixtures are designed to hold torch tips constantly at most effective distance from the metal to be cut. The resulting neater cuts need little or no additional grinding or machine finishing, according to the manufacturer.

Guides are offered singly or in kits and some users have reported that they have been able to fabricate parts with these guides for which ordinarily they would have to wait several days for delivery. New Era Engineering Co., Dept. G-29, 458 W. 29th Street, Chicago 16, Ill.



Power package replacement by White

INDUSTRIAL ENGINES in White Motor Company's 100 Series are available as replacement power units for shovels, cranes and other mechanized pieces of construction equipment. Here M. W. Brooks, manager of industrial engine sales for White, checks installation of a Model 130-IA in a Model 51 Link-Belt Speeder owned by W. F. Biehl Inc., Berea, Ohio, while Mr. Biehl looks on. This engine has 340-cu-in. displacement with 4x4½ bore and stroke. It's intermittently rated at 65 hp at 1,400 rpm. White 100 series are available as replacement units for shovels up to ¾-yd capacity, cranes up to 20-ton ratings, and on air compressors, saw mills, cotton gins and various other pieces of equipment.—The White Motor Co., Cleveland 1, Ohio.

Built-in device shows truck weight at any time

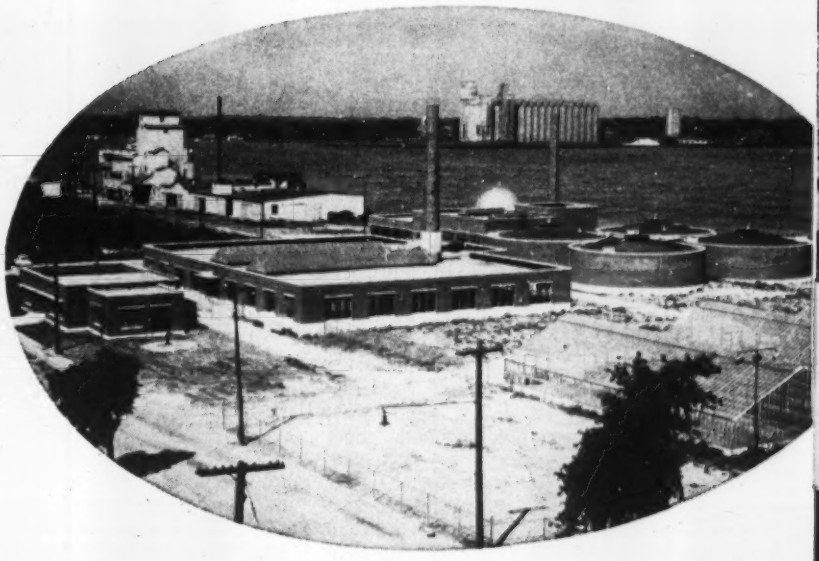
A method of supporting truck, truck-trailer and bus bodies on cushions of air has been designed, and the setup provides the means of weighing a load at any time. The new system replaces conventional springs at half their cost.

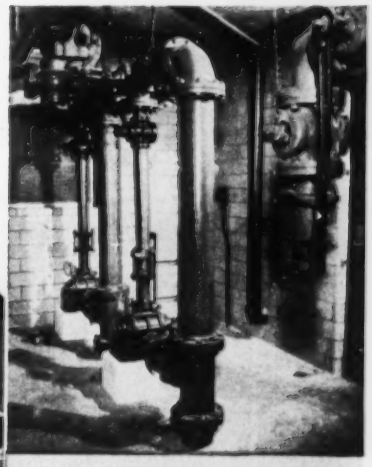
A gauge provides accurate weight readings so that a driver will know when the load limit has been reached. He can also determine the weight of any particular item in the load as soon as it is loaded and a quick computation is made to determine the difference in readings.

Called the Pnu-Ride Weighmaster System, it operates from the air brake system and requires only 20 to 50 lb of air pressure to support weights up to 9,000 lb, according to the manufacturer. Weber Instrument Co., Div. of Link Engineering Co., 13841 Elmira Ave., Detroit 27, Michigan.

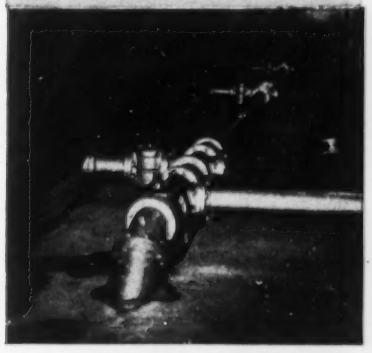
(New Products continued on p. 168)

ANOTHER Sewage Treatment Plant





SEWAGE TREATMENT PLANT
Port Huron, Michigan
ENGINEERS
Drury McNamee & Porter Co.
Ann Arbor, Michigan
CONTRACTOR
Birmingham Construction Co.
Birmingham, Michigan



selects Byers Wrought Iron Pipe for "Hot Spot" Services

How to minimize future maintenance is the leading question of every thoughtful man concerned with sewage treatment plant construction. The leading answer is Byers Wrought Iron pipe.

Typical of this material's acceptance is the Port Huron, Michigan, Sewage Treatment Plant. Here, Byers Wrought Iron pipe was used to safeguard sludge heating lines, garbage grit lines, hot water heating system and hot water lines.

This confidence in genuine wrought iron pipe is almost universal in plants, large and small, in every part of the country. In Salina, Kansas, for example, the material was used in seven vital services—weir plates, scum baffle plates, scum troughs, distributor arms, all gas piping, vertical heat exchangers, and all hot water heating piping. And at Hyperion Sewage Treatment Plant, Los Angeles, Byers Wrought Iron was put to work in 51 services where corrosion was a threat to durability. Space limits a complete coverage, but these plants will serve to suggest the wide-spread use of genuine wrought iron by economy-minded engineers.

Call the roll of the most corrosive services in the modern treatment plant and you'll have a good check list of the places where Byers Wrought Iron pipe and plate is solving maintenance problems to the complete satisfaction of users.

If you would like to review the use that plants are making of this material, and to see some of the performance records that support the choice, write for our bulletin, WROUGHT IRON FOR SEWAGE TREATMENT AND DISPOSAL INSTALLATIONS. You'll find, too, the complete story behind the long established dependability of genuine wrought iron.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, San Francisco. Export Division: New York, N.Y.

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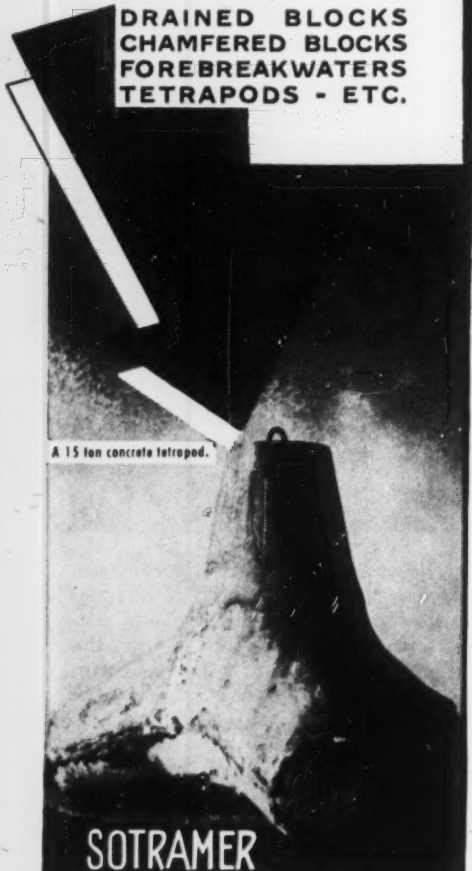

A 15 ton concrete tetropod.

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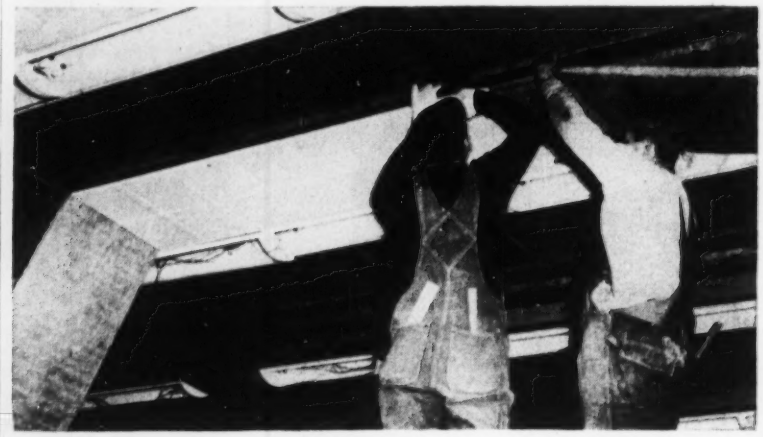


Ceiling pan insulation in two sizes

Two workmen are shown here installing a 100-ft long roll of Aerocor, a noise-absorbing insulation that's a product of Owens-Corning Fiberglas Corp., designed for use with metal ceiling pans. In addition to the rolls, the company also provides individual pads which fit inside ceiling pan units.

These latter measure 11⅞ by 23¾ in. and have a .85 noise reduction coefficient when used with standard perforated metal pans. The roll type is 23¾ in. wide and may be rolled out quickly and easily at a minimum installation cost. When used in this manner it is said to have a noise reduction coefficient of .80.

Aerocor is made of minute fibers of glass; hence it will not burn, support combustion, rot, decay, absorb or give off odors. Paper facing is unnecessary and, because of their compressibility, large quantities of the pads may be stored in a small space. The roll insulation has also been used as a casing insulation on heaters and air conditioners, as flexible insulation around curved or irregularly-shaped ducts and on hot and cold piping. OWENS-CORNING FIBERGLAS CORP., TOLEDO, OHIO.

Portable hoisting machine relocated in a few minutes

There are several kinds of hoisting machines available for the construction industry and they all do good work, but none can be dismantled and moved to another location (or to another site) and be working there in a matter of minutes—except the Buck machine shown here.

This 2,000-lb capacity rig, equipped with a self-dumping ½-yd Buck concrete bucket and a two-wheelbarrow platform, is performing almost all the materials-handling jobs on the Thomas J. Logan Chemistry Building at Xavier University in Cincinnati. Contractor is the Dawson-Evans Construction Co.

According to Walter Gaebel, job super, the machine hoisted and dumped concrete mix for the second floor faster than crews could take it away from the hopper. Maximum requirement was 15 yd per hr and the machine easily delivered 20, he said. In the picture here it's shown repeating the performance at the third floor level. In this spot the tower height is 60 ft.

Brick contractor on the job is Cummings Bros. Co. of Covington, Ky. Charles Cummings, head of the company, says that the average "around town" cost for lowering and removing the Buck machine—and setting it up again is "only from $9 to $10." It's set up in less than 25 minutes, usually, and is self-erecting to 40 ft. Mechanism raises or lowers the tower sections in 2 min, 11 sec, according to the manufacturer. As the tower goes up, its wheels retract; as it lowers, they return to towing position. Its lift rate is 2,000 lb at 100 ft per min. BUCK EQUIPMENT CORP., CINCINNATI 2, OHIO.

Cinder spreader controlled from cab

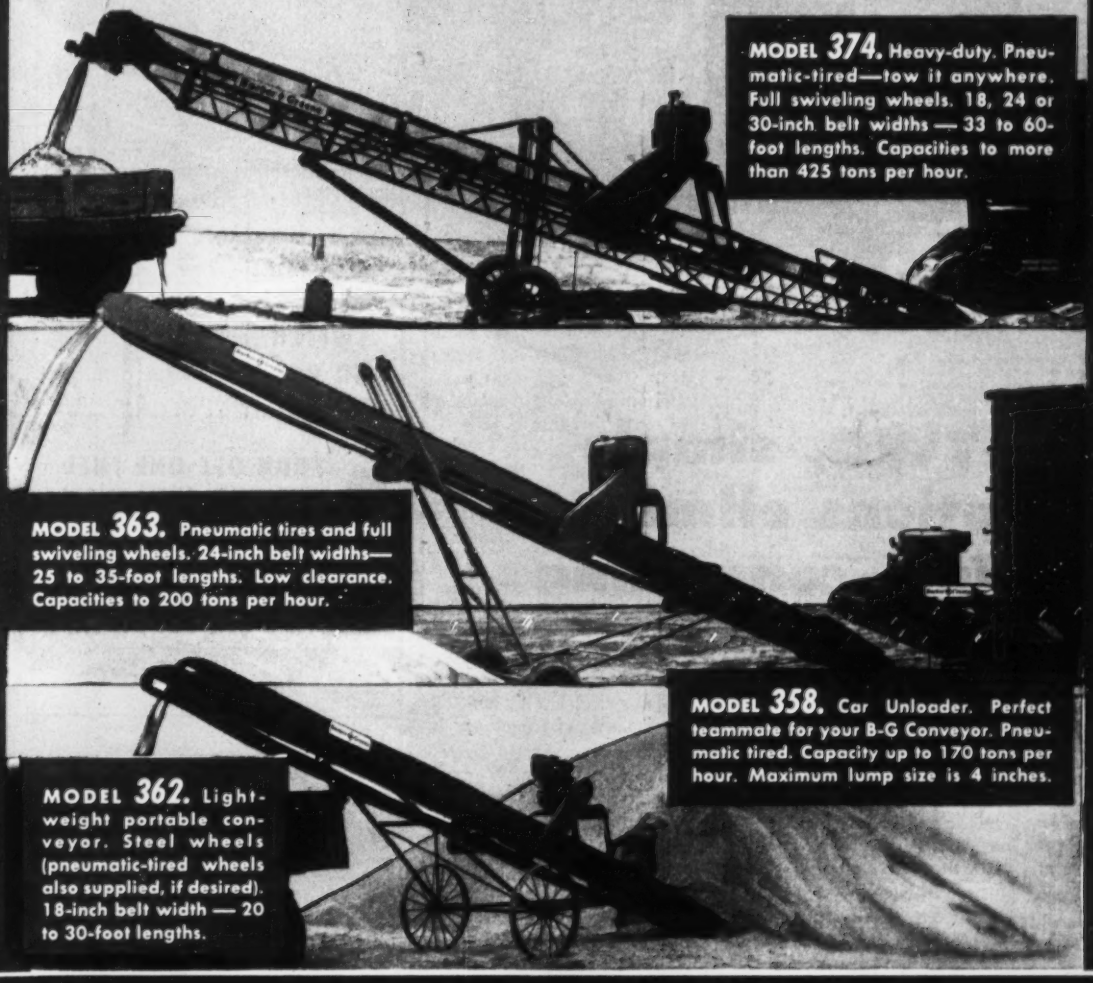
Latest addition to the line of Hercules truck-mounted spreaders is this cinder spreader that's completely controlled from the driver's cab. Precision-control baffles adjust to any spread pattern for full-road or half-road coverage and, keep cinders from scattering and hitting other vehicles. Bolt-on deflector plates permit easy replacement of worn baffles.

(*Continued on page 171*)

PORTABLE CONVEYORS YOU NEED

Here are three standard B-G Portable Conveyors together with B-G Car Unloader . . . all available for prompt delivery from your B-G distributor. These skillfully designed and ruggedly built machines will—within the limits of their capacities—provide you with the most efficient and economical method of handling sand, stone, gravel, coal, coke, ashes, wet concrete, chemicals, bags and boxes.

In addition to the models shown, Barber-Greene also builds larger capacity portable conveyors. Why not check with your B-G distributor for complete information on portable conveyors?



MODEL 374. Heavy-duty. Pneumatic-tired—tow it anywhere. Full swiveling wheels. 18, 24 or 30-inch belt widths — 33 to 60-foot lengths. Capacities to more than 425 tons per hour.

MODEL 363. Pneumatic tires and full swiveling wheels. 24-inch belt widths—25 to 35-foot lengths. Low clearance. Capacities to 200 tons per hour.

MODEL 358. Car Unloader. Perfect teammate for your B-G Conveyor. Pneumatic tired. Capacity up to 170 tons per hour. Maximum lump size is 4 inches.

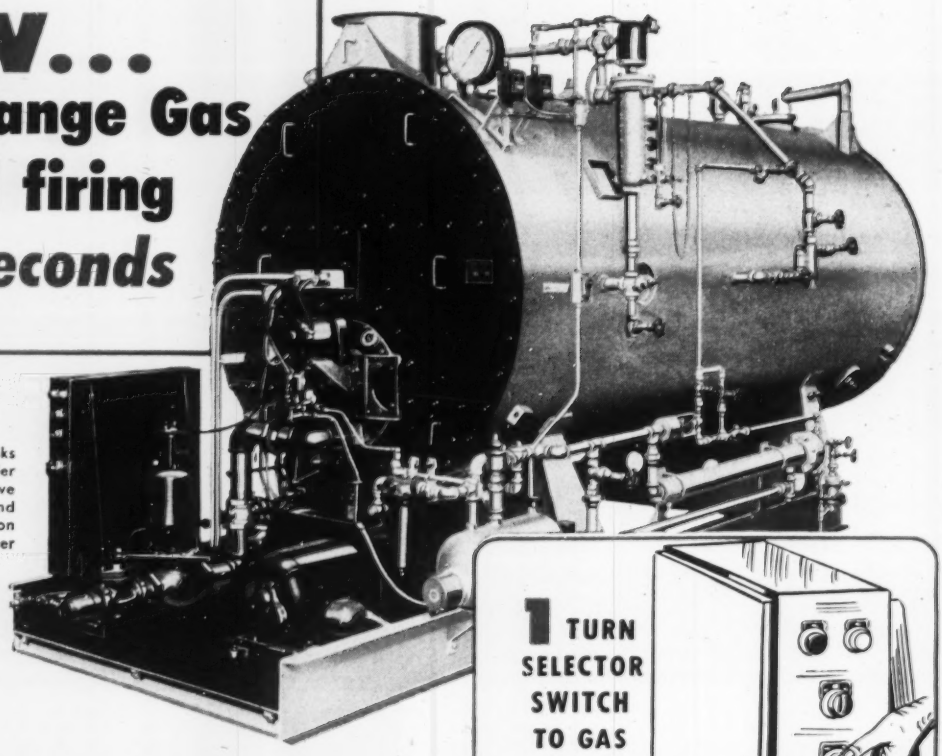
MODEL 362. Lightweight portable conveyor. Steel wheels (pneumatic-tired wheels also supplied, if desired). 18-inch belt width — 20 to 30-foot lengths.

Barber-Greene

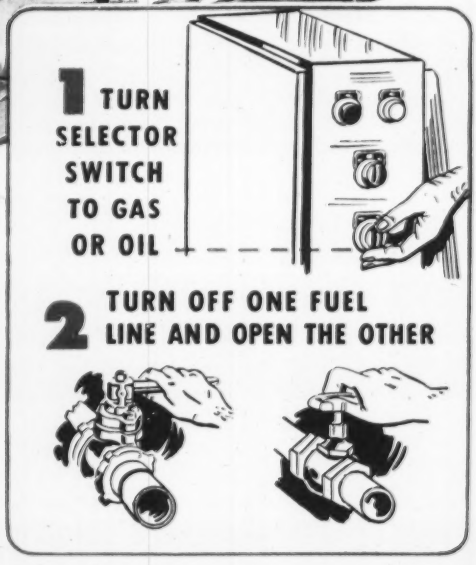
BG

Aurora, Illinois, U. S. A.

NOW... interchange Gas and Oil firing in *10 seconds*



Modern Cleaver-Brooks Model LR Steam Boiler Equipped with Exclusive Cleaver-Brooks "10-second conversion" Combination GAS and/or OIL Burner



TWO, simple motions eliminate time-consuming change-over

Now you can use oil or gas at the flick of a switch! This exclusive new Cleaver-Brooks development permits changeover from oil to gas or vice versa in only 10 seconds.

That's because the Cleaver-Brooks Combination Gas and/or Oil Fired Boiler operates on gas *with the oil burner in place*. Simply flipping a selector switch on the control panel to either gas *or* oil sets the proper circuit in action. Turning the convenient fuel supply valves completes the entire changeover — and in 10 seconds or less!

To gas users in all parts of the country — and in particular areas where local requirements demand immediate changeover — this exceptional fuel flexibility can be an important factor in determining your overall operating economy.

Ten-second conversion, like 4-pass construction, self-contained design, guaranteed 80% efficiency, is another "plus" feature pioneered by Cleaver-Brooks. It demonstrates Cleaver-Brooks' continuing effort to bring steam users even greater flexibility and reduced operating costs.

If you are considering simplifying your present boiler plant, remember Cleaver-Brooks Combination GAS and/or OIL Fired Boilers. Sizes 15 to 500 h.p. — 15 to 250 p.s.i. Write for complete facts.

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Conveyor and spinner mechanisms are powered by a truck-transmission-type power takeoff through a universal joint and protected drive line. A heavy-duty gear reduction box completes the basic speed to power changeover. A preheater uses the truck exhaust heat to prevent large, wet chunks of cinders form forming next to the conveyor chain in the body. This assures constant, uniform spread.

Standard sizes of the semi-sloped hopper bodies are 5 and 9 cu yd and are 11 ft long. Other sizes are available on special order. HERCULES STEEL PRODUCTS CORP., GALION, OHIO.

Masonry saw used to cut stone lintels

The job of cutting limestone lintels on the St. James Cathedral project in Rockford, Ill. was a problem for Gust G. Larson & Sons Inc.—but not for long. The company substituted for chipping hammers, chisels and rubbing stones a Clipper (Model HD) masonry saw and CBR Break-resistant blades.

They converted the Clipper table saw into a track saw by putting the cutting head and motor—as a unit—on a convertible four-wheel cart equipped with wheel guides; then set the cart on tracks as shown. This converted unit, without tracks, had been used to cut patches, trenches, keys and contraction joints in concrete and asphalt.

With the lintel locked in position, the operator merely adjusted blade height with the patented "Select-A-Notch" attachment and a pressure equalizer spring cushioned the blade throughout the cutting cycle. The HD is labeled as a dustless machine, therefore recommended for work in confined areas, right alongside the masons. CLIPPER MFG. CO., SUITE 631, 2800 WARWICK, KANSAS CITY 8, MISSOURI.

New products briefs . . .

An **adjustable conveyor, called the Expando-O-Veyor,** can be set high or low, long or short, to suit requirements. A small unit adjusts from 11 to 18 ft in length; a larger unit, from 15 to 25 ft. On truck loadings, the unit can be moved while the haul unit stands still. It's available from **The Oliver Corp., A. B. Farquhar Div., 142 N. Duke St., York, Pa.**

Inertol grease coating is a **rust preventive** substance designed for coating of **submerged machinery,** which can be protected with this coating and be back at work in two hours, according to the manufacturer, **The Inertrol Co., Inc., 480 Frelinghuysen Ave., Newark 5, N. J.**

(Continued on page 74)

Ejector extensions prevent scraper spillover

EJECTOR EXTENSIONS, such as the one shown here on a No. 21 scraper are available for four other models as well. Made of steel bars welded together and fastened to the ejector top, they can be attached to Nos. 15, 20, 21, 70 and 80 scrapers. They're particularly valuable when working in moist, sticky soils that peel up into slabs and spill over the ejector. Reduced spillage thus lessens the chance of cable fouling. The company says that attachment of the ejectors will in no way hinder shovel or dragline loading.—Caterpillar Tractor Co., Peoria, Ill.

PRESTRESSED CONCRETE STRUCTURES

A wealth of design data on prestressed concrete — with pointers on when and where to use it. Discusses steel and concrete, their types, and behavior when combined into prestressed members. Shows every step in prestressed concrete design —the problem itself, reckoning dead and live load, working all equations. Many detailed examples show how prestressed concrete was used in actual structures. **By August E. Komendant, Consulting Engineer. 261 pp., 153 illus., $6.00**

SOIL MECHANICS, FOUNDATIONS, AND EARTH STRUCTURES

Covers the theory of soil mechanics, together with the principles and practices of designing and constructing foundations and earth structures—indicating the important relationship of these 2 subjects. Emphasizes experimental data and field observation, giving numerous examples of both successful and unsuccessful structures. Covers the estimation of the shearing strength of soils, lateral earth pressures, the effects of plastic flow, sensitivity of various clays to remolding, etc. **By Gregory P. Tschebotarioff, Prof. of Civ. Eng'r'g., Princeton Univ. 655 pages, over 400 illus., $7.50**

ELEMENTARY STRUCTURAL ANALYSIS

An ideal reference or "refresher" in structural theory and the methods of stress analysis needed to solve every kind of structural problem. Supplies scores of illustrative solutions to everyday problems and provides clearcut descriptions of everything from reactions and trusses to deflections of structures and influence lines for statically indeterminate structures. Emphasizes use of models in analyses of structures. **By John Benson Wilbur, Prof. of Civ. Eng., M.I.T., and Charles Head Norris, Assoc. Prof. of Str. Eng., M.I.T. 523 pp., 354 illustrations, $6.50**

HANDBOOK OF RIGGING

Condensed into this one book are all the tips, methods, and techniques essential to more effective rigging practices in industrial and construction operations. Deals with everyday maintenance operations—with the transportation and handling of heavy machinery—with the erection and demolition of smaller size structures. Covers everything from ropes, hoisting chains and hooks, to slings and ladders. **By W. E. Rossnagel, Safety Eng'r. 321 pages, over 300 illus., $6.00**

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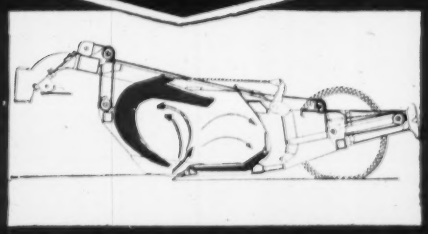
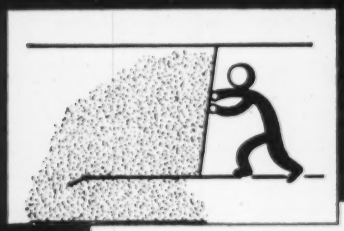
Job time studies prove that Heiliners do a faster, better job of loading than any other units of the same size. It's the skillful, balanced design that does the trick. The bowl is designed to "boil" up a fountain of dirt *in the center of the bowl,* quickly heaping both back and front with evenly balanced pay load. The bowl and the cutting edge do most of the work to save horsepower. With Heil's planetary drive, the final reduction is in the drive wheels, where it does the most good. There's less torque in the axle and no "chatter" on the drive wheels. It provides a smooth application of power from engine to tire for the ultimate utilization of available horsepower. Heiliner's extra large rim size is another power-saving design feature. It permits greater ground contact area for better traction and flotation in soft going.



POSITIVE "TILTING FLOOR" EJECTION

Heiliners have the advantage of the simplest, most efficient type of positive forced ejection known. The diagrams at the right show you why "Tilting Floor" ejection saves horsepower. With the ordinary square bowl, not only pressure against the sides must be overcome, but more horsepower is needed to overcome the tremendous pressure of tons of heavy dirt on the bottom of the bowl. With the Heiliner, the floor simply tilts up to a 75° angle by means of a positive ram action. After the initial static friction is overcome, the only pressure the power control unit has to overcome is that exerted on the sides of the bowl.



LOWER FIRST COST

When you buy Heiliners, you don't buy power that's wasted. There's plenty of power in the big Diesel engine to meet every job condition efficiently, with ample reserves to handle the toughest job. Heiliners "right power, properly applied" reduces first cost as well as operating and maintenance costs.

LOWER OPERATING COSTS

Every Heiliner feature is designed to cut operating costs. Lower power requirements reduce fuel consumption. Big pay load capacity lets you move more dirt per trip. High haul speeds mean an extra trip or two an hour for extra profit. "Passenger car" steering with Heil's exclusive, patented Hydro-Steer, plus big, safe 4-wheel brakes assure easier handling and give the operator confidence to utilize the full power of the machine at all times. Low maintenance requirements and easy servicing reduce downtime.

IT ADDS UP TO LOWER COST PER YARD OF DIRT MOVED

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See your
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Fast, easy spreading with Heiliner's positive, forced "Tilting Floor" ejection cuts earthmoving costs on a job in Minnesota.

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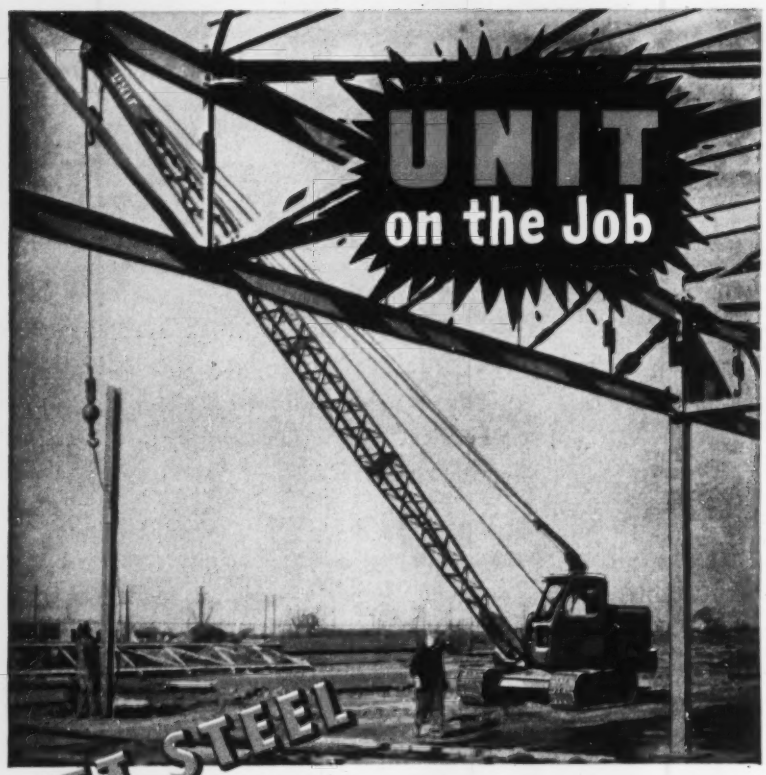

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Lifting, carrying and spotting steel girders into the exact position requires STABILITY — FLEXIBILITY and PERFECT CONTROL. A UNIT Crane gives you all these features . . . and more. Extra Long Crawlers — Multiple Hinged Shoes — Wide Axles and Hook Rollers provide perfect stability. Smooth accurate control of boom and hoist lines permits precision handling. UNIT'S FULL VISION CAB gives the operator excellent visibility . . . makes steel setting jobs easier and faster. UNIT equipment can be quickly and easily converted to handle a wide variety of work. To speed up your steel construction, investigate UNIT. Write for literature.

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½ or ¾ YARD EXCAVATORS...CRANES UP TO 20 TONS CAPACITY
CRAWLER OR MOBILE MODELS . . . GASOLINE OR DIESEL

All Models Convertible to ALL Attachments!

NEW PRODUCTS

Four big causes of air charger failure in jet pumps are electrolysis, corrosion, incrustation and entrance of air through the pump case. **The Dibble Air Charger** is said to be able to eliminate the first three because it is made of plastic and the fourth because it injects air directly into the tank or pressure line. Manufacturer is **Dibble Air Charger Products Co., Inc., Eustis, Florida.**

A type of **steam hose that combines wire braided and glass cord construction** has been developed by **Quaker Rubber Corp., Div. of H. K. Porter Co., Inc., Tacony and Comly Sts., Philadelphia 24, Pa.** Called Ironsides Steam Hose, it's designed for working pressures up to 200 psi and ranges in inner diameter size from ½ to 1¼ in.

A **manually operated clutch** can be had on Models 9FB, 14FB and 23FB engines made by **Briggs & Stratton Corp., Milwaukee, Wis.** It's a dry-plate, over-center type, mounted to engine crankcase, providing positive neutral and power engagement.

Custom-built tube files for storing maps, plans, tracings, etc., up to 60 in. long can be banded together in any desired number and fitted to a small safe or in a section of a larger safe for fireproof storage. The entire bank of tubes tilts forward for easy insertion or withdrawal of any one, and all can be indexed easily, according to **Scott-Rice Co., 610 S. Main St., Tulsa 3, Oklahoma.**

A hoist tower has been added to the Bil-Jax scaffolding line. Suitable for general contracting use, the new tower offers ease of handling, a built-in ladder and ability to carry a 4-ton load. **Bil-Jax Inc., Archbold, Ohio,** claims that it can be used for sidewalk bridging or scaffolding when not in use as a tower.

A new line of safety goggles has been placed on the market by **Pullmosan Safety Equipment Corp., 644 Pacific St., Brooklyn 17, N. Y.** The line includes hardened lenses for chipping, grinding and impact; filter lenses for welding, burning and cutting; others for dusts and chemicals.

Plastic-coated work gloves, called Dynagluvs, are liquid-proof and highly resistant to abrasion and abuse. They're made in knitwrist, gauntlet and band top styles, either **fully-coated or palm-coated** and are available from **Granet Corp., Framingham, Mass.**

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EDITORIALS

Atomic information

WHEN A PERSON IS HUNGRY even scraps are welcome and useful. With this thought in mind, an article in this issue gives more prominence to last week's atomic explosion test than its evaluation by ordinary standards would justify. Some, but not much, structural information can be gleaned from the damage to the two frame buildings. Some additional push may be given to civil defense activities as a result of the visual evidence of what an atomic blast can do—although the fact that neither house burned and that one of them was not blown down is more quieting than frightening.

Actually the real value of the tests may lie in the effect they create in the minds of A.E.C. officials. If, having publicized this one test and its results without dire consequences to our national safety, they should decide to be more liberal in releasing the kind of information the public needs, a great good would have been accomplished.

As things stand, so great is the fear of the unknown that progress in several phases of atomic development is less than it could be. Structural engineers, for example, cannot help but procrastinate in doing constructive thinking on safer structures when all they have to go on is a hearsay knowledge of vast forces to be resisted and a digest of stale reports on what happened at Hiroshima. Manufacturers wishing to use fission products or radio-isotopes in various processes are hindered because their workmen have unwarranted fears of radioactivity. Power reactor experimenters go slower than they would if they were more certain of how close to civilization they dare establish nuclear power plants. Many of these fears and hesitations would disappear if the full light of existing knowledge were allowed to focus on them.

That the A.E.C. is wrestling conscientiously with this problem of release of information, there can be no doubt. That its policies in this regard are being constantly liberalized, there is growing evidence. It can only be hoped that experience with the latest test on the Yucca Flats of Nevada will give it new courage to go a little faster.

Use of bridge tolls

A PROPOSAL by Joseph K. Costello, executive director of the Delaware River Port Authority, to reinstate a 25¢-toll on the Philadelphia Camden Bridge, in place of the current 20¢-toll, turns attention to a question that deserves continuing attention: To what extent can surplus income from a toll facility be used to finance the construction or operation of other facilities without creating a condition in which an inequitable tax is placed on the users of that toll facility?

The operations of the Port of New York Authority are this country's outstanding example of such use of highway tolls. There the large surplus of income over operating costs on the Holland and Lincoln vehicle tunnels has made it possible for the Port Authority to finance many operations having no immediate possibility of being self-supporting, but which are desirable from the viewpoint of the overall development of New York as a great center of land, sea and air tansport. For example, without the income from the tunnels, the Port Authority would not have been able to finance the great expansion of New York's air terminals that it undertook a few years ago. Conceivably also its credit would not have been good enough for it to undertake what has proved to be a profitable union bus terminal.

From a practical viewpoint, there can be no question but that the port of New York as a whole has benefited from the continuation of tolls higher than would be required to meet operating and financing costs for the Holland and Lincoln tunnels. And it appears probable that the Philadelphia-Camden area as a whole will benefit if higher tolls on the present bridge over the Delaware make it possible to finance a second bridge quickly and at lower interest rate than that Port Authority would have to pay if it does not have the extra income the tolls will provide. Nevertheless, the practice of using income from a profitable facility to support one of uncertain income-producing capacity has possibilities for being inequitable. Also, it can lead to extravagant expenditures for projects of doubtful value.

Many users of the vehicle tunnels at New York hold that the present toll rates put an inequitable tax on motor-vehicle traffic moving in and out of New York City. Conceivably, the difference between what trucks are now paying and what they would pay if tolls covered only maintenance and operating costs could be the controlling factor in the decision of a manufacturer to move his business out of New York City to some point in New Jersey. Thus the maintenance of an unnecessarily high tax on highway transport to subsidize air transport into New York City (through the construction of airport facilities) may be driving business away from the city.

There is no simple or easy answer to the questions raised by this practice. But this much could be done: Whenever a toll is higher than is needed to make a facility self-supporting, continuation of the higher toll should be subject to periodic review and analysis either by the legislatures of the states directly concerned or by an impartial commission set up by the legislature. Only thus can there be any certainty that a toll higher than needed to support the facility itself is not being maintained unnecessarily, or at an undesirably high level simply because it is easy to do so, thus putting a load on one part of the community that should be spread over the whole region.

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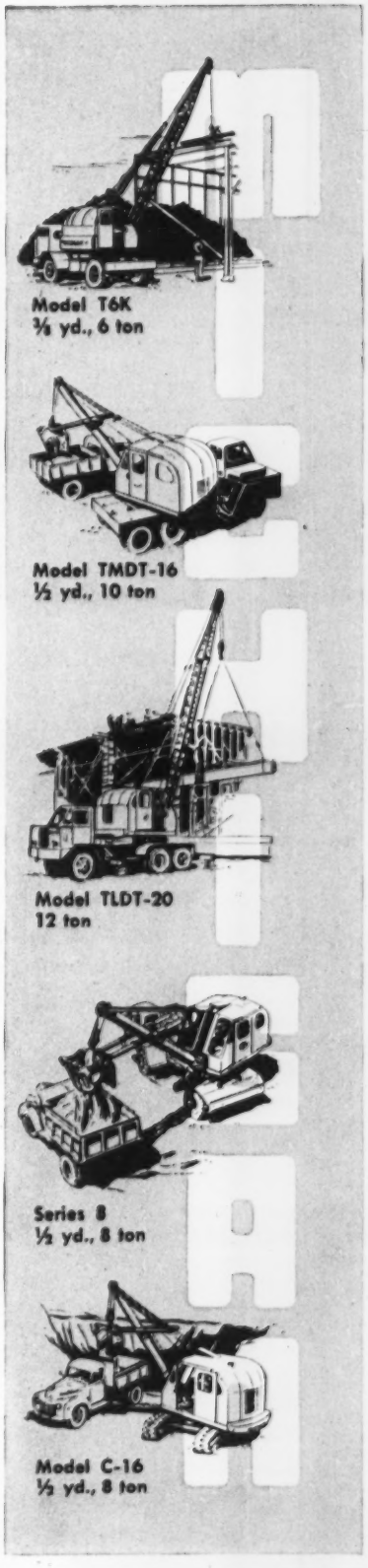

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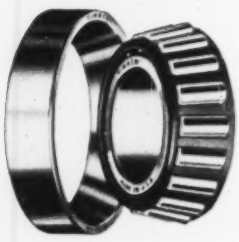

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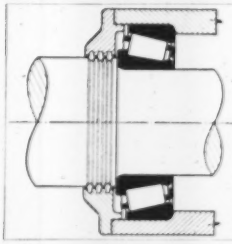

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